

Draft

ENVIRONMENTAL IMPACT

STATEMENT

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KALISPELL MALL

SHOPPING CENTER

February 1980

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DRAFT
ENVIRONMENTAL IMPACT STATEMENT

for


KALISPELL MALL SHOPPING CENTER
Kalispell, Montana

Lead Agency:
MONTANA STATE DEPARTMENT OF HIGHWAYS

Sponsored by:
DEVELOPERS DIVERSIFIED

February 1980

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TABLE OF CONTENTS

LIST OF MAPS	iii
LIST OF TABLES	iv
I. INTRODUCTION	1
II. PURPOSE OF THE ENVIRONMENTAL IMPACT STATEMENT	3
III. DESCRIPTION OF THE PROPOSED ACTION	4
A. Location.	4
B. Type of Development	10
C. Permits and Approvals Required.	12
D. Natural Environment	14
E. Man-Made Environment.	15
F. Social Environment.	17
IV. CATEGORICAL IMPACT ANALYSIS	19
A. Natural Environment	19
1. Wetlands, Vegetation, and Wildlife.	19
2. Natural Drainage Courses.	21
3. Geomorphology, Geology and Soils.	25
4. Climate	30
B. Man-Made Environment.	33
1. Transportation.	33
2. Energy and Telephone Utilities.	49
3. Air Quality	51
4. Noise	60
5. Energy Use.	70
6. Water	72
7. Sewerage.	75
8. Solid Waste Disposal.	77
9. Storm Drainage.	80
10. Historic and Archaeological Sites	82
11. Man-Made Hazards.	83
12. Land Use.	83
C. Social Environment.	94
1. Cultural Uniqueness and Diversity	94
2. Social Structure.	94
3. Population.	95
4. Housing	96
5. Aesthetics.	104
6. Economy and Employment.	106
7. Community Facilities.	120
8. Public Safety Services.	122
9. Public Health Services.	125
10. Recreation.	127

V. ECONOMIC AND ENVIRONMENTAL BENEFITS AND COSTS.	128
A. Primary, Secondary and Cumulative Impacts	128
B. Potential Growth Inducing or Inhibiting Impacts	134
C. Economic Benefits and Costs	135
D. Environmental Benefits and Costs.	136
E. Short-term Versus Long-term Costs and Benefits.	137
VI. ALTERNATIVE ACTIONS AVAILABLE TO THE DEPARTMENT	139
VII. RECOMMENDED DEPARTMENT OF HIGHWAY ACTION	152
FOOTNOTES.	153
APPENDIX A: AIR QUALITY MODELING ANALYSIS	156
APPENDIX B: ESTABLISHED ZONING DISTRICTS IN THE BUFFALO HILL AREA . .	162
APPENDIX C: FINDINGS OF FACT.	165
APPENDIX D: TRAFFIC LEVELS OF SERVICE STANDARDS	168

LIST OF MAPS

Vicinity Map	2
Area Map	5
City of Kalispell.	6
Buffalo Hill Area.	7
Immediate Vicinity	8
Kalispell Mall Site Map.	9
Soils.	28
Traffic Count Stations	36
P.M. Peak Hourly Volumes and AADT.	37
Proposed Site Access Plan.	39
Distribution of Shopping Traffic	41
Shopping Traffic Only.	43
1990 Regional Traffic Only	44
1990 Combined Regional and Shopping Traffic.	46
Noise Monitoring Sites	65
Proposed Water System.	74
Proposed Sewer System.	78
Existing Land Use.	85
Comprehensive Plan	87
Zoning Map	89
Architect's Rendering.	105
Major Shopping Facilities.	121
Traffic Alternative One.	141
Traffic Alternative Two.	142
Traffic Alternative Three.	143
Traffic Alternative Four	145
1990 Combined Traffic.	146
Recommended Alternative Roadways	148
Roadway Segments	151

LIST OF TABLES

Annual Average Daily Traffic Counts	35
Air Quality Data Report.	52
Federal Ambient Air Quality Standards.	54
Montana Ambient Air Quality Standards.	54
Comparison of Air Quality Levels During 1979	55
Average Morning and Afternoon Mixing Heights From Average Monthly Temperature Traces - Airport Site.	57
Percent Frequency of Occurrence of Periods with Inversion(s) Present from Acoustic Radar - Airport Site	57
Logarithmic Scale Representation	61
Common Noise Levels.	62
How Loudness Changes with Decibel Changes.	63
Existing Noise Levels dBA - Proposed Project Site.	66
Population	97
City of Kalispell Housing Characteristics, 1974.	101
Housing Demand - Kalispell Planning Area	102
Income by Major Sources.	107
Employment by Major Sources.	108
GAF Sales - Flathead County.	109
Retail Sales Per Capita - Flathead County.	110
GAF Sales Analysis - 1977 - Kalispell Trade Area	111
Potential Retail Sales Growth 1977-1985.	112
Civilian Labor Force and Unemployment Rates.	114
Construction Cost Estimates for the Alternatives	149
Projected CO Concentrations from Roadway Line Source in ppm.	158
CO Emission Density - Shopping Center Parking Lot.	160
Estimated Total CO Concentration	161

I. INTRODUCTION

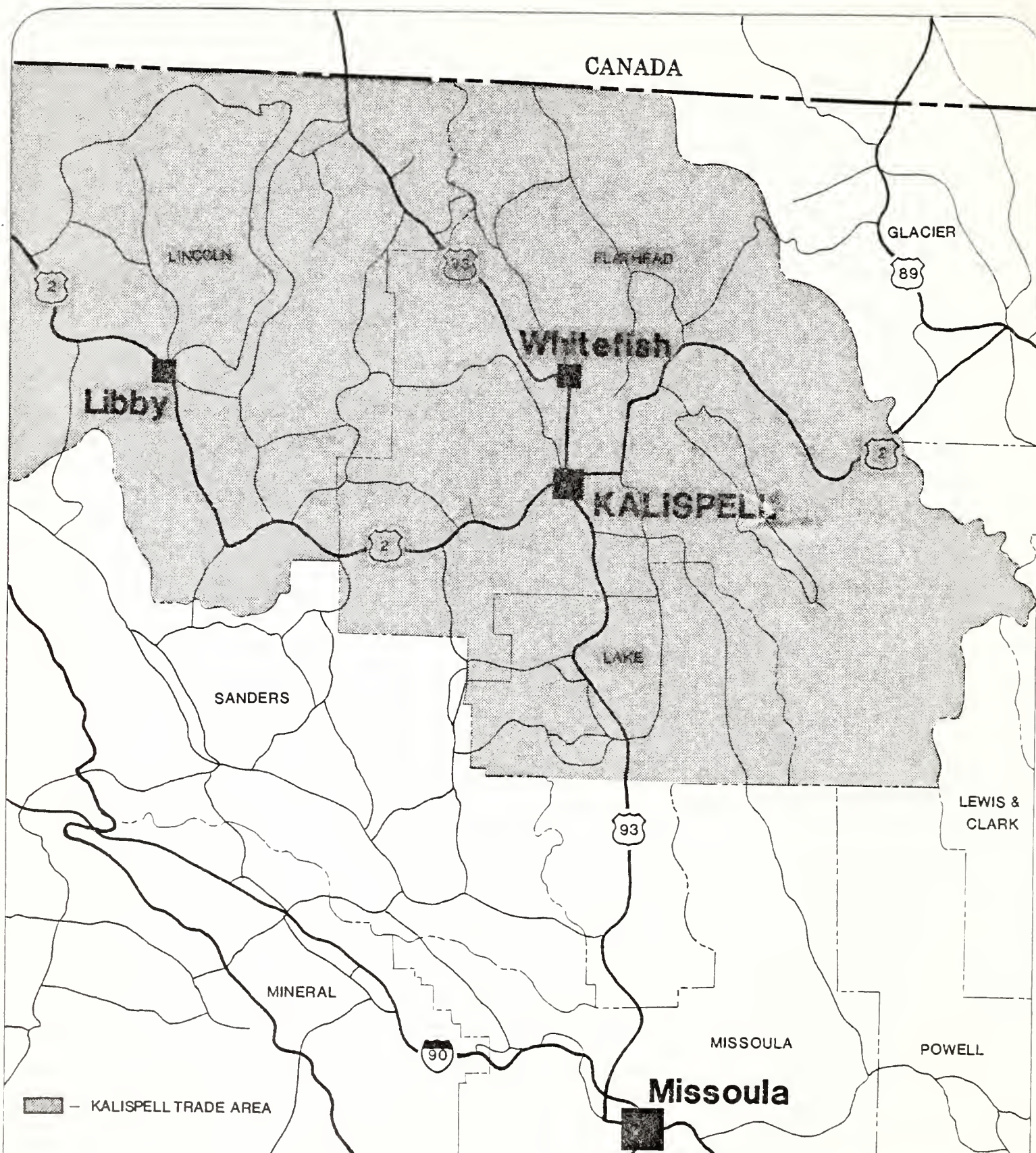
The proposal under review is a request for driveway approach permits required for the development of a proposed regional shopping center to be located in the Buffalo Hill area north of Kalispell. The proposed approaches will allow access onto U.S. Highway 93. The following draft environmental impact statement (EIS) concerns a traffic approach permit to be issued pursuant to Title 60, Chapter 2, Part 2, MCA, entitled "Department of Highways - Powers and Duties".

The lead agency for this action is the Montana Department of Highways. The responsible official is Les R. Reichelt, Environmental Coordinator. Comments, information or any questions may be addressed to Mr. Reichelt at the Montana Department of Highways office in Helena, or by calling (406) 449-3156.

Copies of this document may be obtained from the Department of Highways.

This draft environmental impact statement was issued on February 22, 1980. In order to be incorporated into the final EIS, public comments and remarks by consulted agencies must be received by the lead agency on or before March 29, 1980.

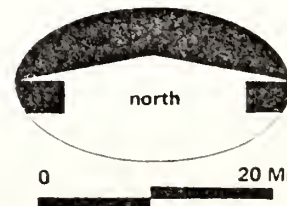
This DEIS was prepared for the Department of Highways by Haworth and Anderson, Inc., W. 621 Mallon, Spokane, WA 99201. Principal in charge of the project was Dr. Anthony H. Anderson. Project Director was John V. Geraghty, Jr. Other preparers included Jack Brenton, document editor; Cathy Hoglen, research associate; James Frank, air quality; James Millgard, graphics; and Karen Hicks and Joanne Siegel, production. Associated with Haworth and Anderson for this project was Julio Wong, traffic engineer, of Zoltan Kuun Associates, Vancouver, B.C.



VICINITY MAP



HAWORTH & ANDERSON, INC.
Consultants in environmental analysis, planning, and design



II. PURPOSE OF THE ENVIRONMENTAL IMPACT STATEMENT

This draft environmental impact statement was prepared by Haworth and Anderson, Inc. of Spokane, Washington, under contract with the Department of Highways for their use pursuant to the Montana Environmental Policy Act (75-1-101 et seq. MCA) under Rule V guidelines adopted by the Montana Department of Highways.

The purpose of a draft environmental impact statement is to transmit information concerning proposed governmental action and alternatives to that action to public officials, project sponsors, and interested citizens. A principal function to be served by the draft EIS is to facilitate the transmittal to the lead agency, from other governmental agencies and interested citizens, of substantive information concerning probable environmental impacts which may have been discussed inadequately or erroneously in the draft EIS. The review process also provides an opportunity for the reviewers to bring to the attention of the lead agency any issue of potential environmental concern which should be explored by that agency prior to the issuance of a final environmental impact statement.

III. DESCRIPTION

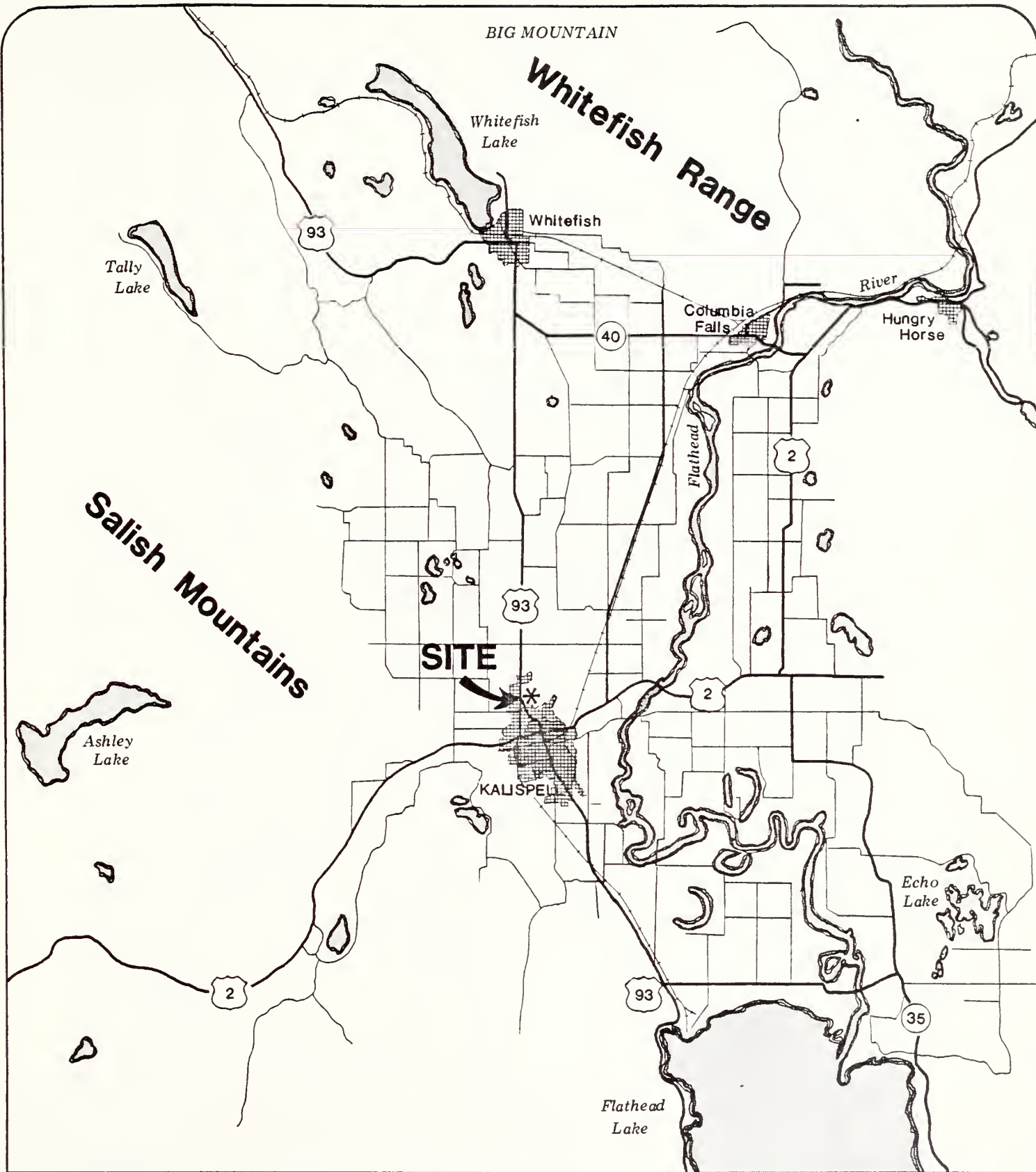
A. Location

The project sponsor, Developers Diversified, of Cleveland, Ohio, proposes to build the Kalispell Mall shopping center just north of the Kalispell city limits and east of U.S. Highway 93 in Flathead County. The site is a 52-acre parcel of land which is an assemblage of two tracts of land. (See the maps on the following pages.)

Of the total 52-acre site, 38 acres would be developed. The remaining 14 acres would be set aside for buffer zone, utility development, slope transition and possible future development. There are three proposed access points to U. S. Highway 93. From south to north, the first access point would be where North Meridian Road intersects U.S. Highway 93; the second at North Ridge Drive; and the third at the northwest corner of the site. Another access point south to Sunnyview Lane also has been planned. The on-site traffic will be regulated by a ring road as indicated on the site plan.

The predominant land use surrounding the site is mixed residential with a larger number of single family units. Some offices and commercial businesses are located in the immediate area. Also, the Pacific Power Company, the Kalispell Regional Hospital, professional medical buildings, churches, and the Kalispell Junior High School are located in the Buffalo Hill area near the site.

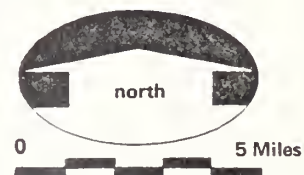
The site is in Flathead County within the joint Kalispell city-county planning area. A general comprehensive plan for the area was adopted in 1974 and designated the area for relatively high-density future residential growth. However, a zoning resolution was recently adopted by the Board of County Commissioners changing the site from an unclassified zone to a B-4 Commercial zone allowing for a community shopping center use.

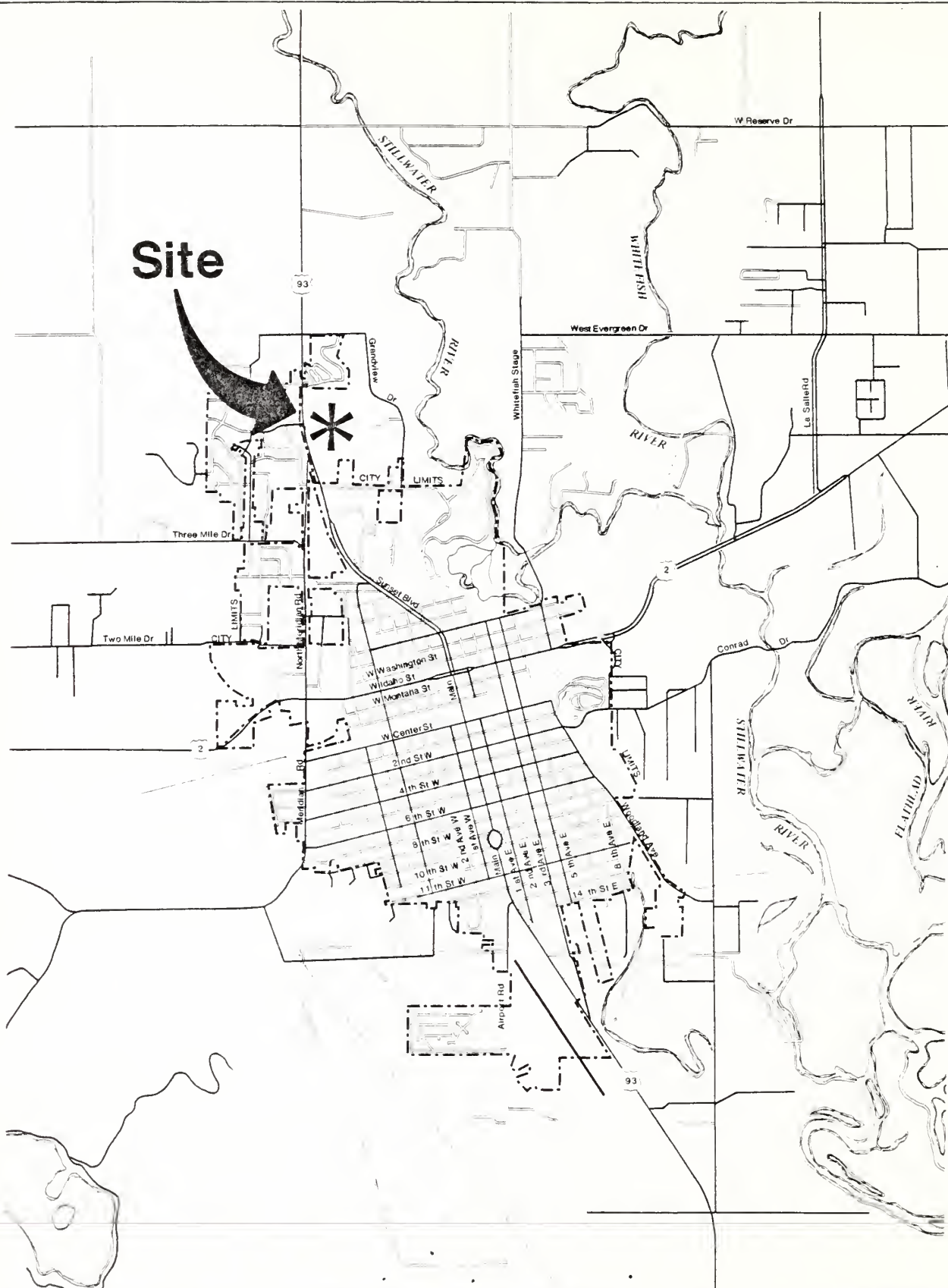


AREA MAP



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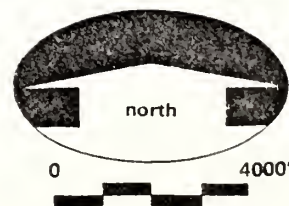


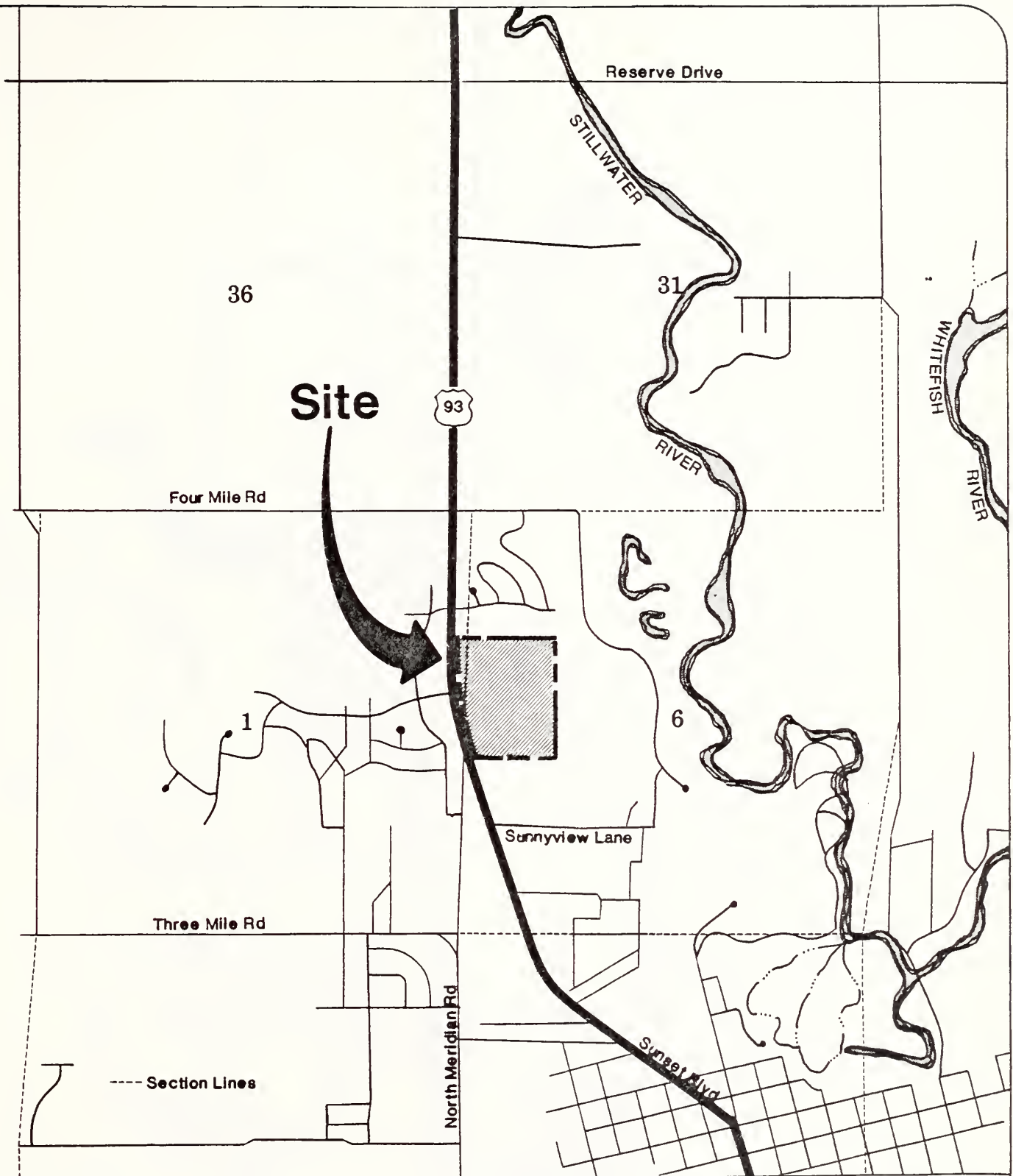


CITY of KALISPELL

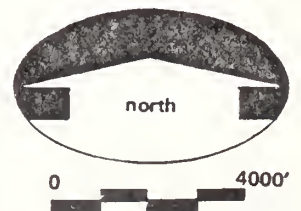


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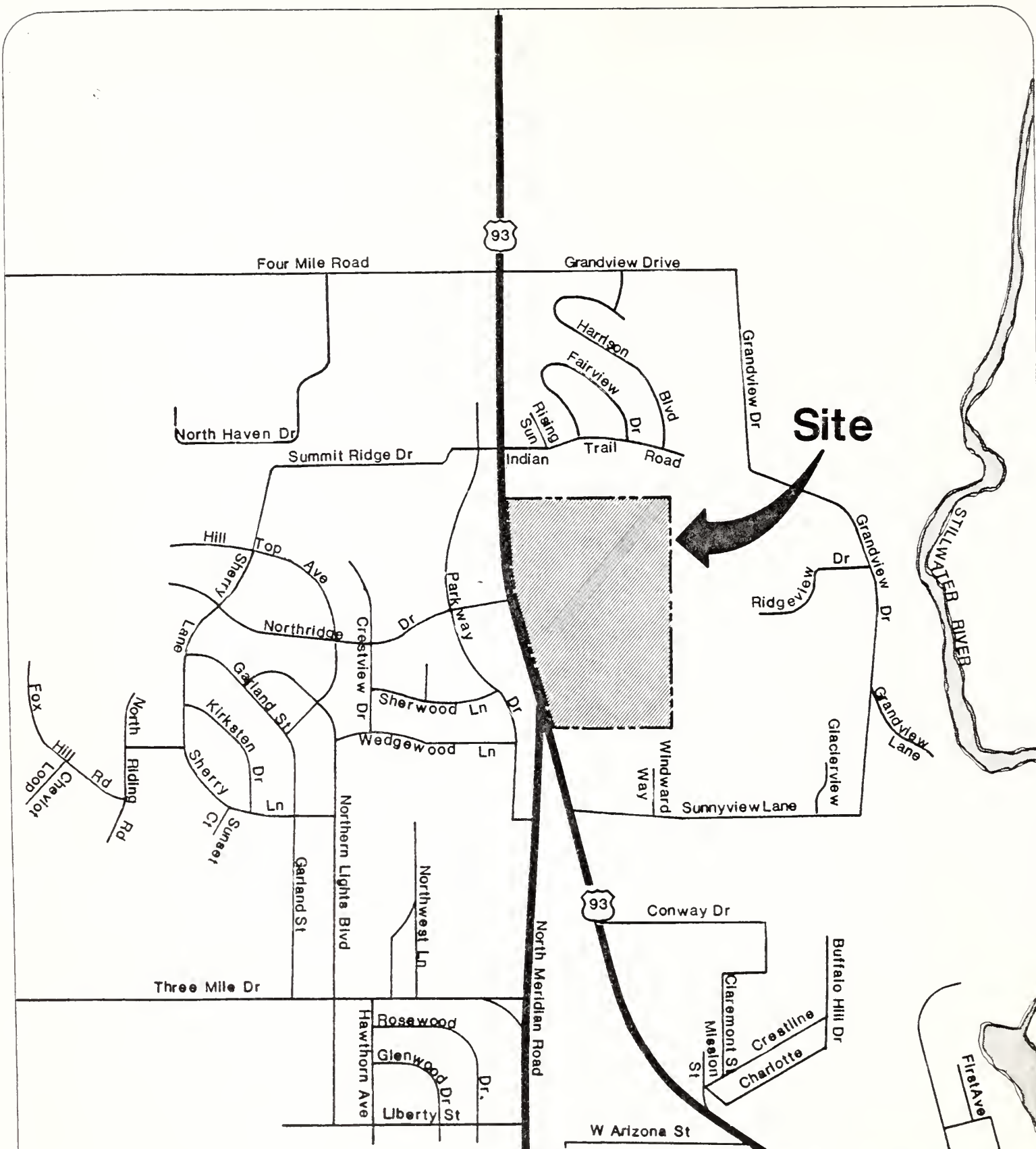




BUFFALO HILL AREA



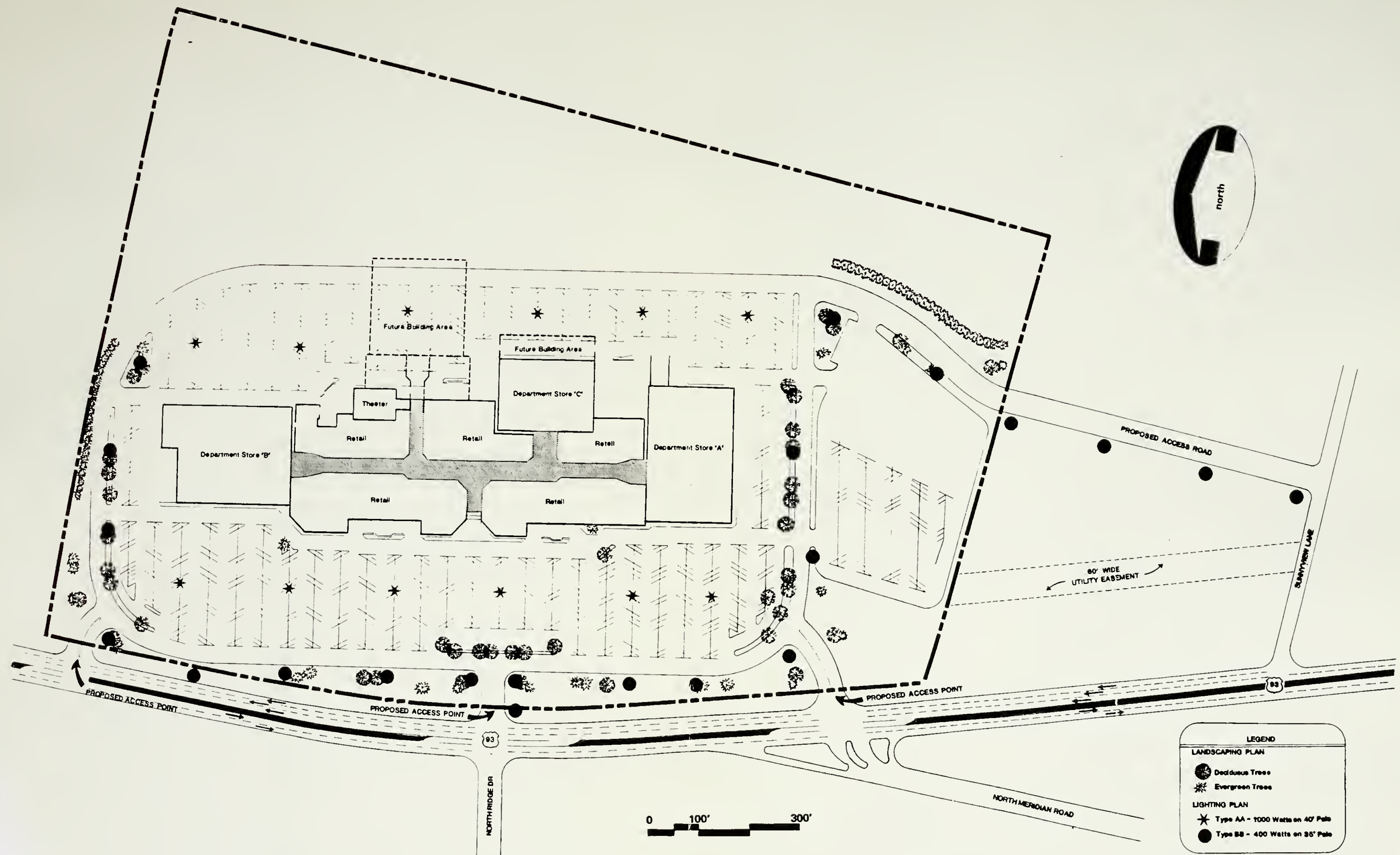
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IMMEDIATE VICINITY



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LEGEND

LANDSCAPING PLAN

- Deciduous Tree
- Evergreen Tree

LIGHTING PLAN

- Type AA - 1000 Watts on 40' Pole
- Type BB - 400 Watts on 35' Pole



KALISPELL MALL SITE PLAN

B. Type of Development

The proposed shopping center is presently named the Kalispell Mall. The mall will be developed in two phases. Phase I will include three separate department stores, additional retail space, kiosks, and a theatre. The total gross leasable area in Phase I will be 279,339 square feet. The total building area, including non-leasable space, will be 321,592 square feet. If Phase II is implemented the department store and other retail space added would increase the gross leasable area to 352,868 square feet. The total building area would be 395,121 square feet. These figures might change to accommodate tenant space needs.

The one-story mall facility will be built of pre-cast concrete. Landscaping will be used to enhance the site appearance and provide buffer areas. Upon completion of both phases total mall parking will be 1,800 spaces at a ratio of 5.5 per 1,000 square feet. Pole lighting will be provided in the parking area and at entryways to the site.

It is projected that operation of Phase I of the project will generate 500 to 600 jobs (both full- and part-time employment) and that Phase II will generate an additional 75 to 100 jobs.

Since the proposed site is currently located outside the city limits of Kalispell, it is anticipated that water, sewer, and storm water drainage systems will be developed on-site. A septic tank and absorption field will be located along the eastern portion of the site. Storm water drainage will be collected in a separate water channel and transported to a retention/detention facility which is to be located on the northeast portion of the site.

The water supply for the mall will be provided by two drilled wells-- one for domestic supplies and the other for fire requirements. A water tower

with storage capacity of approximately 150,000 to 200,000 gallons will be constructed to meet Insurance Service Organization requirements. Fire services will be provided by a sprinkling system for the mall complex in addition to public services provided by the West Valley Fire District with assistance from the City of Kalispell when necessary.

The possibility of hooking up to water and sewer service systems provided by the City of Kalispell is being pursued. The existing sanitary sewer main is located directly west of the site and when combined with a small lift station, it could easily be connected to serve the site. A 12-inch city water main runs through an easement on the west portion of the site. This main is part of the city's water system. The project developers have drafted plans to hook into the city systems but would need the city's approval prior to such action.

Law enforcement services will be provided by the Flathead County Sheriff's Department and by private security services. The mall will be heated with natural gas supplied by the Montana Power Company and supplied with electricity from Pacific Power Company. Solid waste disposal will be provided by a private contractor.

The project developers are Developers Diversified, an Ohio-based limited partnership duly registered to transact business in the State of Montana. The project coordinator for Developers Diversified is Ronald Schivinski, 1450 South Havana, Suite 300, Aurora, Colorado 80012.

C. Permits and Approvals Required

Development of the Kalispell Mall will require the following permits and approvals:

1. Department of Highways (DOH)

The mall will require driveway approach permits from the Department of Highways. A permit application for access points has been submitted by the project developers. The driveway approaches and any additional access improvements will be financed by the developer. A parking and traffic study for the project has been submitted by the developers' consulting engineers to the Department of Highways. The Montana Department of Highways Maintenance Division will be responsible for the issuance of the driveway approach permits.

2. Department of Health and Environmental Sciences (DHES)

Under the Department's Supervision of Water Quality, the Department of Health and Environmental Sciences will have review responsibilities for the storm water runoff and a general review responsibility for the adequacy of water services provided. An engineering report along with necessary plans and specifications for a public water system will be submitted to the department for review and approval. For the on-site sewer system, detailed plans and profiles will be provided to the Flathead County Sanitation engineer at the City-County Health Department.

3. Montana Department of Natural Resources and Conservation (DNRC)

The developers will obtain a well permit and DNRC will be responsible for the issuance of a certificate of water rights. If the site is annexed into the city, there will be no water wells needed.

4. Local and County Governments

Regardless of whether or not the project is developed outside or inside the city limits, the City Building Department must issue a building

permit and inspect the mall construction to ensure compliance with various building codes. The project site is currently located in Flathead County but is bounded by the City of Kalispell and falls within the boundaries of the city-county planning area. A generalized comprehensive plan for the Kalispell planning area has been adopted. The county has recently approved a zoning resolution for designating the site as a B-4 commercial zone. (See Appendix for a discussion of zoning categories.)

D. Natural Environment

The shopping center, as proposed, is to be located on the east side of U.S. Highway 93 in the Buffalo Hill area of Flathead County. The site consists of kame deposits and kettle holes of well-bedded gravels overlain by glaciolacustrine materials consisting mostly of sands and silts.

No known fault zones pass through the site. However, there are many in the county. The entire county is in a moderate seismic risk zone of 2.

The area has a gently rolling topography and the site elevation is 3,076 feet above sea level. Soils found on-site are the Kalispell-Tally Association, characterized as deep dark well-drained sandy loams with agricultural properties suitable for the cultivation of small grain and hay.

Vegetation consists of natural grasses and no large trees are found on the site. Most trees in the immediate area are found near water sources and drainageways.

The Stillwater River passes approximately 2,000 feet east of the site, then forms a confluence with the Whitefish River just east of Kalispell to its final destination at the Flathead River.

No unique or endangered species of fauna are known to inhabit the site. Most wildlife found in the area consist of game birds, song birds, raptors, waterfowl, ground burrowing mammals, white-tailed deer, coyotes, rabbits, skunks, and raccoons, which are more commonly found near the waterways and away from the more developed areas. The Stillwater River has a Kokonee salmon run in the fall. Trout are the predominant fish species found in waters of the area. The climate of Kalispell is influenced by coastal and continental weather. Average annual precipitation is 15 inches and average annual temperature is 43° F. Prevailing wind direction is from the west and northwest.

E. Man-Made Environment

The site is surrounded by urban development, much of which is within the city limits to the northwest and south. Land use in the area is mixed. The Parkview Terrace is a residential area of mixed single family and multi-family units located directly north of the site. To the east most of the land slopes towards the Stillwater River and remains as relatively large rural residential parcels. Beyond the river is the Evergreen residential area.

The City golf course, a new condominium development, the Kalispell Regional Hospital, professional medical buildings, a recreational center, churches, and a drive-in theatre occupy most of the land southeast and south of the site.

Directly west of the site, across U.S. Highway 93, the land use consists mostly of relatively new residential development along with two churches, a school, a funeral home, a florist shop, and office buildings. More business development can be found towards the southwest along Meridian Drive.

Residential development in the Buffalo Hill area has been fairly active and recent zoning and proposals for residential development in the area would seem to indicate that this trend will continue. The current residential population of the Buffalo Hill area is approximately 1,700.

U.S. Highway 93 is a principle arterial south of Idaho Street and a major arterial north of Idaho Street. It is the major north/south transportation route in the area. Other roadways in the Buffalo Hill urban system include three minor arterials (Meridian Road, Whitefish Stage Road, and Three Mile Drive), four collectors (Northridge Drive, Crestview Drive, Sunnyview Lane, and Grandview Drive), and other city and county streets.

Traffic has increased with expanding residential, business/commercial development, and the hospital and related facilities locating in the area.

Energy service to the area is provided by the Pacific Power Company and the Montana Power Company. Both electricity and natural gas are available at the site. Northwestern Telephone Company provides service in the area. Water and sewer services are provided by the City of Kalispell to those areas incorporated within the city limits. Other residents and developments in the county are on private wells and sewage disposal systems. Solid waste disposal occurs at a county landfill located a few miles northwest of the site.

The noise environment of the area is relatively quiet registering at about 50 dBA or less on-site and in most areas located away from the major arterials. Noise levels are slightly higher near U.S. Highway 93 because of traffic.

Air quality in the area is good. The topographic situation of the Kalispell Valley causes some temperature inversions but they are usually short-lived and dispersed by winds.

A cultural resource inventory was conducted on November 27, 1979, by the Cultural Resource Division, Mineral Research Center, Montana Tech Alumni Foundation. Nothing archaeologically or historically significant was encountered on the site during the inventory or during preliminary grading of the site.

There are no man-made hazards obvious on the site.

F. Social Environment

Kalispell has served as the cultural, social, governmental and retail trade center of northwestern Montana since the early 1900s. Agriculture and forestry have physically and economically dominated the Kalispell area since its founding. Rapid growth in tourism and retirement facilities has occurred recently in the area. Recreation resources include Glacier National Park and Big Mountain Ski area north of the site and Flathead Lake to the south. The major access route to these and many other recreational areas in Flathead County is by U.S. Highway 2 and U.S. Highway 93. Although the proposed project site is not aesthetically remarkable, it does offer a pleasant view of the surrounding mountains.

The population of Kalispell and its suburbs is estimated to reach 22,518 persons in 1980 and 27,918 by 1990. Current residential population of the Buffalo Hill area is 1,701 as estimated by the Kalispell Areawide Planning Organization. The area immediately north of Kalispell has undergone rapid residential growth and this trend is expected to continue as recent development in the area proposes 392 new dwelling units. Existing zoning in the area allows for the development of approximately 2,400 additional units. These figures do not reflect the development potential of areas not yet zoned that have been categorized under the current comprehensive plan.

Residents living near the proposed Kalispell Mall site are closely tied to Kalispell for employment, schools, services, shopping and entertainment. Areas immediately north, south and west of the site are within the Kalispell city limits and are urbanized rather than rural in nature. The urbanization of the area will be further reinforced when a proposed mixed-use residential development occurs on a large tract of land northeast of the site near the Stillwater River. There also has been recent speculation on the development

of land in Section 36 just northwest of the site for the future location of a multi-purpose center and schools.

Public services such as fire and police protection are provided by both the city and county under a mutual aid agreement. Since the project site is in Flathead County, the West Valley Fire District would be first to respond to any fire calls and the Flathead County Sheriff's Department would have jurisdiction on the site. The Montana State Highway Patrol has traffic jurisdiction authority on U.S. Highway 93. There are several parks in the area serving the needs of those residing nearby. Maintenance in the area is primarily focused on the roadways, which are the responsibility of Flathead County, the City of Kalispell and the State Department of Highways.

There are four churches in the immediate area of the site, a funeral home, hospital, professional offices, recreational center and various business establishments. The hospital operates an emergency alert system helicopter. The City Fire Department operates three ambulances which are in service around the clock and are located at the main station in downtown Kalispell.

IV. CATEGORICAL IMPACT ANALYSIS

This section contains a detailed analysis of the probable effects of the proposed action on the environment. For each environmental category, the analysis addresses the existing condition of the environment, the impact of the proposal on the environment, measures proposed or available to mitigate the adverse impacts identified, and the unavoidable adverse impacts that will result if the proposed action is taken. The order of discussion is reflective of the analytical requirements of the Montana Environmental Policy Act and the Department of Highways Rules which implement Title 75 of the Montana Environmental Policy Act.

A. Natural Environment

1. Wetlands, Vegetation, and Wildlife

a. Existing Conditions

The site of the proposed project does not contain wetlands. Vegetation on-site is predominantly grasses. Considerable thistle growth is in evidence throughout the area along with dandelion, mullen, nettles, fireweed, and clover. A clump of seven large poplars is located along the eastern boundary of the site on adjacent property. Some gooseberry and wildrose bushes which were located along the western boundary of the site were removed during site preparation. Fauna noted on-site consists of pheasant, doves, and abundant rodents, ground-burrowing mammals, and rabbits.¹

A check with the local Montana State Fish, Wildlife and Parks biologist indicates that the existing wildlife in the area consist of upland game birds such as pheasant and grouse, and various non-game birds such as songbirds, raptors, and doves. Along the watercourses in the area, shorebirds such as blue heron and a variety of waterfowl are common.²

Other wildlife common to the area include tree and ground squirrels, field mice, skunks, rabbits, coyotes, white-tailed deer, raccoons, and porcupine. The Stillwater River is the closest watercourse to the site. It is known for the Kokonee Salmon runs in the fall season. The predominant fish species in the Stillwater River and other rivers in the area is trout.³

The Stillwater State Game Preserve encompasses a broad area between the Flathead River and U.S. Highway 93, including the southern portion of the project site. The creation of game preserves within the state is for the protection of all the game animals and birds within their limits. Within the limits of the game preserve no person may hunt for, trap, capture, kill or take game animals, fur-bearing animals, or birds of any kind. The carrying or discharge of firearms is prohibited. The Fish, Wildlife, and Parks (FWP) Commission may declare any preserve open to the trapping of fur-bearing animals during the regular open season. Special permits to capture animals for the purpose of propagation or for scientific purposes may be issued by the FWP director in accordance with the rules established for the preserve by the commission.⁴

Large areas of the Stillwater Game Preserve land have recently been developed into residential, recreational, public, and business uses. The State FWP Department has the authority to alter and change the boundaries of or entirely do away with and abandon almost any preserve or refuge when in the opinion of said department it is in the best interest to do so.⁵

b. Probable Impact of the Proposed Action

Construction activities will disturb the on-site ecological systems, eliminating on-site vegetation and causing most of the fauna inhabiting the the site to relocate or perish. When the facility is complete and new landscape vegetation provided, some of the birds and small mammals may return

but most will have been eliminated or relocated to less developed habitats. Assuming that the areas adjacent to the site are currently at carrying capacity for fauna, the project will eventually result in a net loss of fauna approximately equal to the number currently on the site.

c. Measures to Mitigate Adverse Impacts

The disruption of the local ecosystem during construction activities may be mitigated to some extent by the temporary nature of these activities and the mobility of the fauna currently inhabiting the site.

d. Unavoidable Adverse Impacts

The vegetation of the site will be removed during construction of the proposed project and partially replaced by landscaping. Most of the fauna currently on the site will be eliminated or displaced to new habitats. Ultimately, the number of animals eliminated will approximate the number currently on the site. However, these losses would be the same as those that would occur if the site were developed for high-density residential use.

2. Natural Drainage Courses

a. Existing Conditions

There is no existing surface water on or associated with the site of the proposed project. An intermittent stream (drainage depression) is located just north and northeast of the site. It originates in the area of Big Lost Creek to the northwest and drains towards the southeast. The nearest major watercourse in the area is the Stillwater River, which passes about 2,000 feet east of the site. A drainage channel along Grandview Drive, which passes near the site, outfalls to the Stillwater River.

The Stillwater River originates from creek drainages in the mountains northwest of Kalispell and meanders the full length of the valley to join

the Flathead River southeast of Kalispell. On its journey to the Flathead River, the Stillwater forms a confluence with the Whitefish River just north-east of Kalispell.

Flood flows for these rivers and the major creeks in the Kalispell region are currently being determined. Preliminary 100-year floodplain areas established in the 201 Facilities Plan for Kalispell reveal that the site is not within a flood hazard area.⁶

Each stream (or reaches of a stream) is designated under a classification system set forth in the Montana Department of Health and Environmental Science Water Quality Standards (ARM 16-2.14(10)-S14480).⁷ The Stillwater River is currently classified as B-D₂. Water in this classification

is to be maintained suitable for drinking, culinary and food processing purposes after adequate treatment equal to coagulation, sedimentation, filtration, disinfection and any additional treatment necessary to remove naturally present impurities; bathing, swimming and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply.

No serious water quality problems resulting directly from man's activity were identified in the State 303e Plan in the Stillwater River. However, some erosion from agricultural areas is experienced and natural stream bank erosion is particularly high along the lower Stillwater River. The milky appearance of this reach of the river is in part due to the suspension of fine streamside colloidal-like material.⁸

Ground water in the area is contained in several aquifers, the oldest being in bedrock of Precambrian age. Younger water-bearing units of Pleistocene age include a deep artesian aquifer, two shallow artesian aquifers, and three smaller perched aquifers. Some floodplain deposits of sand and gravel contain ground water also.⁹

One of the three perched aquifers in the Kalispell Valley is located in the glacial outwash northwest of Kalispell. Ground water flow in the aquifers generally follows the direction of surface stream courses and eventually discharges to surface streams and Flathead Lake.¹⁰

The underlying deep artesian aquifer supplies ample amounts of water for the area. Water from this aquifer is good but requires some iron removal. Recharge to the artesian aquifers is mainly along mountain fronts and discharge is to other aquifers near the center of the valley by upward percolation through permeable materials.¹¹

b. Probable Impact of the Proposed Action

The proposed project will not result in changes in currents, course, or direction of flow of surface water or ground water in the site area.

Runoff and absorption rates of surface water on-site will be affected by the creation of an impervious surface. This represents a significant potential change in runoff and absorption characteristics on-site. The project sponsor has designed a storm water retention system on-site which will store 200,200 cubic feet of water; this exceeds the amount of water that would accumulate on-site during the one hour of a 50-year storm (a storm of a severity expected to occur only once in 50 years). For further information on the proposed system, see subsection 9 of Part B of this section.

The water discharged by the on-site storm water retention facility will evaporate and percolate through the soil and eventually recharge the water table. This redirected water will essentially be rainwater containing elements of impurities found on parking lot surfaces (petroleum-based products, soil particles, small debris, etc.). There may be some salt contamination

derived from ice removal in the winter. In any event, the contaminants will be introduced to the soil system for further breakdown before such water enters the water table. No bacterial or viral contaminants will be introduced and it is believed the vertical distance to the water table will mitigate the potential for ground water pollution from storm water percolation. No significant adverse impacts are anticipated if such a system is constructed according to engineers' specifications and operation is monitored regularly.

The proposed project should not result in the discharge of any wastes or surface runoff from the site into surface waters or surface channels. The release of storm water from the retention facility into the drainage ditch along Grandview Drive is not recommended, as explained below. No alteration of surface water quality is anticipated from the proposed project.

c. Measures to Mitigate Adverse Impacts

Increases in surface water runoff may be mitigated through the use of the on-site retention pond facility to be built in the northeast area of the site. Surface water will be diverted to the retention facility and then recharged into the ground and/or evaporated.

The release of storm water from the retention facility into the drainage ditch along Grandview Drive is not recommended due to potential pollutants reaching the Stillwater River. However, if this action proves necessary some mitigating measures which should be implemented include the use of baffles to increase detention time, skimmers to remove grease, oil, and gas, and flocculation to remove other undesirable compounds that may be present. Also the outlet of the pipe should spill into an area armored with Fieldstone to reduce velocity before entering the drainage ditch. It would be necessary to reshape and revegetate the road ditch along with other improvements to use this ditch for drainage.

During the winter snow removed on-site should be piled to melt into the catch basin drains and then into the retention facility on-site. The retention facility should be surrounded by a chain link fence for safety purposes.

Any wells drilled on-site should be drilled into the lower artesian aquifer, which contains an ample water supply.

d. Unavoidable Adverse Impacts

If the storm water drainage is confined to the site and either evaporated or recharged into the ground, there will be no unavoidable adverse impacts.

3. Geomorphology, Geology, and Soils

a. Existing Conditions

The project site lies in a vast valley located in the northern Rocky Mountain trench region of Montana. In general, the Flathead Valley was formed by downfaulting in the late Paleocene era, followed by the action of ice and primeval lakes which alternately eroded and then inundated filling in the valley floors with gravel, sand, silts, and clays.¹² The cutting, eroding, and deposition by the meandering rivers in the region played a dynamic role in forming the area's existing physical features.

The immediate site area has a gently rolling topography of outwash fans and terraces. The elevation of the site is 3,076 feet above sea level. The site consists of kame deposits and kettle holes of well-bedded gravels overlain by sand and silt glaciolacustrine materials. No running water is found on-site. The nearest source of drainage is the Stillwater River located some 2,000 feet east of the site.

Flathead County has had an active geologic history. There are numerous known fault zones and earthquake epicenters which have been mapped by the

Montana Bureau of Mines and Geology.¹³ The known and probable faults tend to be associated with stream channels and east-trending mountain block zones.¹⁴ The nearest known fault in the site area is located about 2-1/2 miles southwest. This fracture zone passes through an area of glacial deposits and precambrian sedimentary rock of the Siyeh Formation and Lower Piegan unit.¹⁵ Most of the faults in the area are considered to be inactive and no data is available to establish an historical record or make future projections concerning movement along these features.

Faulting occurs in sudden slippage movements, breakage of rocks, and subsequent shaking or vibrating movements. Alluvium materials typically undergo violent shaking in the event of an earthquake resulting in more severe damage than quakes in other materials. This relationship is important in the alluvium-filled valleys of Flathead County as population and development tend to be centralized in these areas. Any future displacement will in all likelihood occur along existing fault zones and have an effect on adjacent areas.¹⁶

Flathead County is rated as a no. 2 or having moderate seismic risk on a scale of 0-3 in Montana. The Uniform Building Code describes different structural engineering requirements for different seismic risk zones. The stringency of engineering standards increases with known seismic risk in the area.

The depth to bedrock beneath the site is not known but is thought to be very deep due to the thick terrace deposits of sand, silt, and gravel and the unconsolidated aquifers overlying the bedrock aquifers in the area. The Montana Bureau of Mines and Geology has mapped the surface of ground water in the site area at an elevation of 2,930 feet.¹⁷ This ground water surface

would be some 146 feet beneath the ground level of the site. The sand and gravel on-site is rated as a good source of sand and gravel for road fill by the Soil Conservation Service.¹⁸

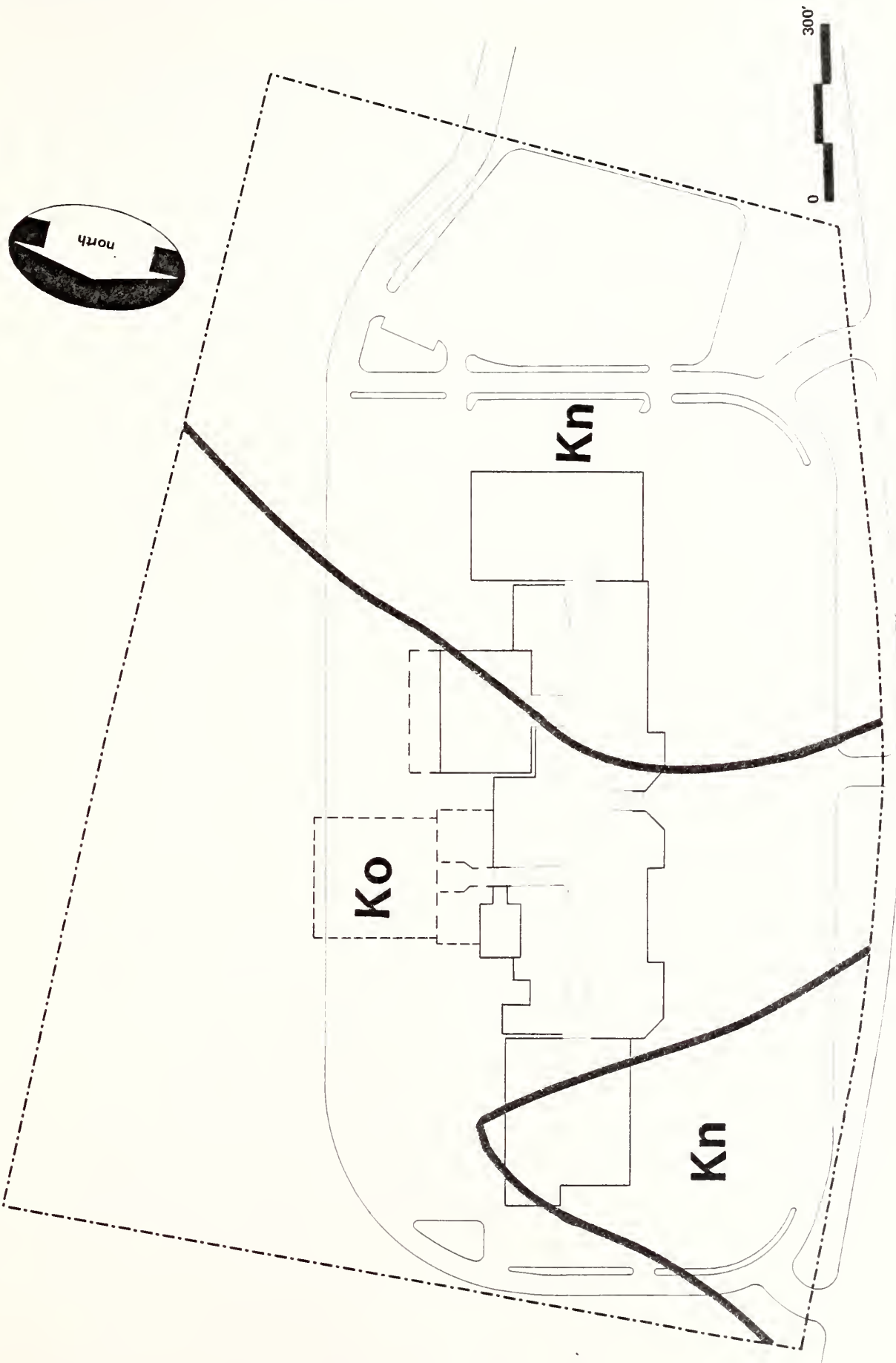
The major soils association in the area and on the project site is the Kalispell-Talley, Blanchard and Flathead. This association consists of deep, dark brown, well-drained, loamy, and moderately sandy soils and moderately deep, gravelly soils. It is fair for agricultural purposes and suitable for grains and grass.¹⁹

Within the project site two types of soils have been identified by the Soil Conservation Service: (1) Kalispell loam, moderately deep over gravel, 0 to 7 percent slopes (Kn); and (2) Kalispell loam, moderately deep over gravel, 7 to 12 percent slopes (Ko).²⁰ The distribution of these soils is shown on the map on the following page.

Northern Testing Laboratories, Inc., Consulting Geotechnical Engineers, investigated the soils and subsurface conditions on-site and published its "Report of Foundation Investigation; Shopping Mall, Kalispell, Montana" in May of 1979. This report records logs of the soil conditions and the results of the testing that was performed. Thirty test borings were drilled, varying from five to 25 feet in depth.

Subsurface soils consist of silt underlain by sandy gravel. The silt is a glacio lacustrine deposit ranging in thickness from 1 to 3 feet over most of the site, to as much as 10 feet in the kettle holes. It has poor shear strength, high compressibility, and in some instances, a very low in place density. There is also evidence of considerable organic content at several locations, and frost susceptibility is high.

The sandy gravel is a medium dense to dense fluvial deposit. It has low compressibility within the anticipated load range, and good shear strength. Standard penetration resistance (N) values range from 19 to more than 100 blows per foot; the majority are in the 25 to 40 range.



SOILS

The report recommends that spread or continuous footings for support of structural loads be founded in gravel.²¹ The report contains detailed information on the engineering characteristics of the on-site soils.

b. Probable Impact of the Proposed Action

The proposed project will not result in unstable earth conditions or in changes in the geologic substructure. However, surface features on-site will be altered during site preparation, excavation, leveling, and construction. Some site preparation has already taken place. This involved subgrade removal of silts which were determined less suitable than gravel for laying an asphalt surface and building upon.

Approximately 73 percent of the site (38 acres, or 1,655,280 square feet) will be covered by the mall structure and parking area. This will involve disruptions, displacements, compaction, and overcovering of the soils on-site. The remaining 14 acres (609,840 square feet) will be used for locating utilities, a buffer area, and landscaping. An earth berm will be constructed from the excavated soils along the eastern portion of the site.

Due to the slight slope on-site and medium surface runoff characteristics of the soils it is not expected that construction activities will significantly increase erosion. The movement of heavy equipment and trucks on-site will contribute to wind and water erosion, but if proper management is practiced such as grading for drainage, soil erosion should be controllable.

The operational phase of the project will reduce the potential for erosion through landscaping and the provision of a surface water runoff/storm drainage network and settling basin on-site. (For further discussion, see subsection 9 of Part B of this section.)

c. Measures to Mitigate Adverse Impacts

The impacts on the soils and topography of the site should be mitigated by the architectural and landscaping treatment of the site. It is anticipated that soils excavated will be utilized in this landscaping process. Erosion during construction activities can be mitigated by grading for drainage. The operation of the facility should mitigate erosion potential through diversion and retention devices for storm water runoff.

d. Unavoidable Adverse Impacts

The disruption, displacement, and overcovering of soils on-site must be considered an unavoidable adverse impact, as well as the loss of the sand and gravel resource offered by the site. However, this resource would also be lost if the site were developed into residential land use.

4. Climate

a. Existing Conditions

Kalispell can best be described as an area of climatic transition between coastal and continental weather. To the west the influence of the Pacific Ocean causes wet winters and dry summers. To the east, beyond the Continental Divide, rainfall typical of the Great Plains prevails; the wettest months are early in the summer, and the winters are relatively dry.

Annual precipitation in Kalispell averages 15 inches. Approximately 25 percent of the total precipitation falls in the summer months of May and June with the remainder being fairly uniformly dispersed throughout the year. The mountains surrounding the Kalispell Valley may receive several hundred inches of snow a year.

The average annual temperature for Kalispell is 43° F. July is generally the warmest month and January the coldest. An average of seven days a

year have maximum temperatures about 90° F. and 12 days have minimum temperatures below zero.²²

The prevailing wind direction from February through September is from the west; then from October through January the winds blow from the northwest. Average wind velocities range from 5.1 to 6.8 mph with the highest average being recorded in the months of April and May.²³

Conditions at Kalispell are not representative of the entire valley. Winds are considerably stronger at the airport, just eight miles northeast of Kalispell. Warm air formed over land in the afternoon is displaced by cool air from Flathead Lake at night. Differential heating of air between Flathead Lake and the valley causes southerly winds in the afternoons which are most prevalent in the summer months.²⁴

The frost-free growing season in Kalispell is approximately 150 days, longer than many areas in the valley due to the local topographic features and proximity to Flathead Lake.

b. Probable Impact of the Proposed Action

The proposed project is not expected to create any regional alterations in air movements, moisture, or temperature, or result in any changes in regional climate.

Site-specific climatological impacts should be minor. The height (single story) and bulk of the proposed project should not significantly affect wind speeds or direction. There may be some marginal increase in site heat balance as a consequence of the conversion of the site from an undeveloped vegetational state to a built-upon environment. All other influences should be very minor.

c. Measures to Mitigate Adverse Impacts

The heat balance effect may be mitigated to some degree through the use of landscaping and the energy conservation techniques discussed in subsection 5 of Part B of this section. No other mitigating measures are necessary.

d. Unavoidable Adverse Impacts

None.

B. Man-Made Environment

1. Transportation

a. Existing Conditions

(1) Transportation Network

U.S. Highway 93 travels through Kalispell and is a major traffic carrier connecting Montana to other states to the south, and to Canada to the north. At the site, it is a four-lane, two-way facility with paved median and shoulders. Immediately north of the site, it tapers down to two lanes.

About 1.3 miles south of the site, U.S. Highway 93 intersects U.S. Highway 2. Together, these two routes carry the bulk of the traffic passing through the area, and they are part of the "Federal Aid to Primary System".

The transportation infrastructure in the Buffalo Hill area consists of a system of streets of which many are part of the larger community traffic network, referred to as Kalispell's "Federal Aid to Urban Systems". Meridian Road, Whitefish Stage Road, Three Mile Drive, Northridge Drive, Crestview Drive, the county road to the junior high school, Sunnyview Lane, and Grandview Drive to U.S. Highway 93 are part of this urban system. Reserve Drive and part of Three Mile Drive are county roads included in the "Federal Aid to Secondary Systems".

Meridian Road is a city-maintained north-south artery which joins U.S. Highway 93 across from the south edge of the site. Its approach has a gradient of about eight percent, and the intersection is a skewed "T". Presently, it is a two-lane road, and its upgrading is in the reconnaissance stage.

Northridge Drive is a two-lane city-maintained collector street which serves the residential area west of U.S. Highway 93. The intersection with the highway is about midway along the project site frontage.

Grandview Drive is a county-maintained road which intersects with U.S. Highway 93 about 0.3 miles north of the site. It forms a loop towards the east as it connects with Sunnyview Lane. There are plans to link Grandview Drive directly east to Evergreen Way, thus forming a major east-west route.

Sunnyview Lane is a city-maintained two-lane paved road which serves the Kalispell Regional Hospital complex, medical offices, a community recreation center, and residences in the area. See the map on page 8 for the location of the roads described above in relation to the site location.

(2) Traffic

Existing traffic generators in the area include the growing residential neighborhoods, churches, the Kalispell Regional Hospital, medical and professional offices, and some commercial developments. Another component of the highway traffic is the recreation-bound traffic attracted by the summer and winter facilities such as the national park and skiing areas.

The Department of Highways of the State of Montana conducts yearly traffic counts on several sections of the road networks. The results are the Annual Average Daily Traffic (AADT) Counts, which represent 24-hour volumes in both directions for a given year. The table on page 35 tabulates recent AADTs of the count stations near the project area, which correspond to the station numbers on the map.

The downtown intersection of Main Street (U.S. Highway 93) and Idaho Street (U.S. Highway 2) has been a subject of concern due to the possible adverse impact from the new mall's traffic. In the summer months, this intersection operates at a volume-to-capacity (v/c) ratio of 1.26 and a level of service of "E" (see Appendix D) during the afternoon peak hour. This represents the upper limit of tolerable congestion. The map on page 37 illustrates a traffic count conducted at the Main-Idaho Street intersection. It shows peak-hour turning movements and volumes of Annual Average Daily Traffic.

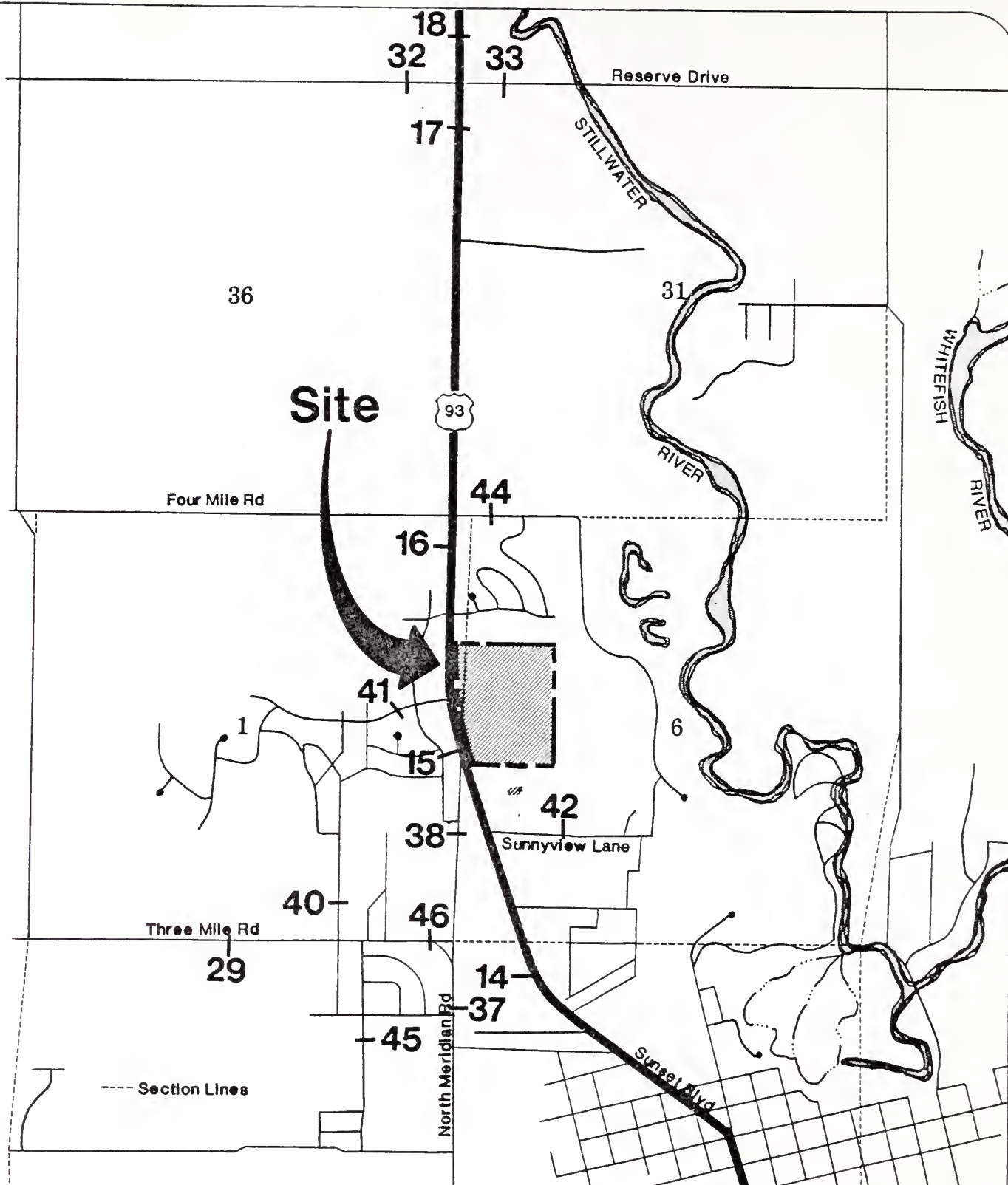
ANNUAL AVERAGE DAILY TRAFFIC COUNTS¹

<u>Station</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
14	---	---	---	7,886	---
15	---	---	---	7,151	---
16	---	---	---	5,928	---
17	4,268	5,195	5,140	5,967	---
18	3,524	4,476	4,483	5,333	---
29	---	---	956	1,361	1,586
32	121	131	141	330	---
33	730	912	1,472	1,712	1,939
37	---	---	5,815	6,060	6,178
38	---	---	2,593	2,836	---
40	---	---	454	---	410
41	---	---	1,065	954	879
42	---	---	2,436	1,211	2,624
44	---	---	82	79	135
45	---	---	---	269	---
46	2,206	2,073	3,156	2,960	3,086

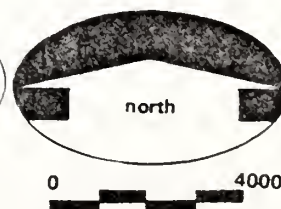
Note :

¹Figures represent average 24-hour traffic volumes in both directions.

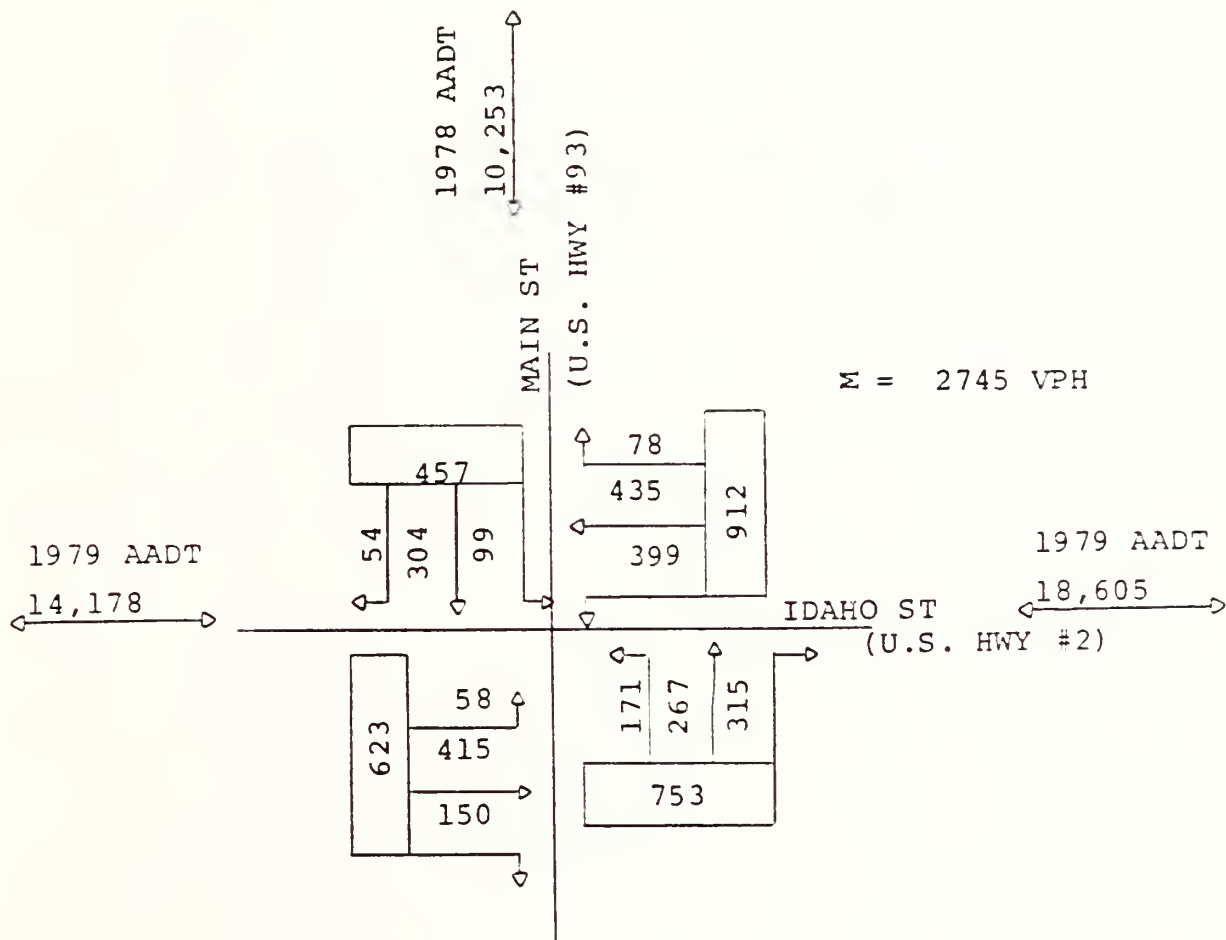
Source: Department of Highways, State of Montana.



TRAFFIC COUNT STATIONS



HAIWORTH & ANDERSON, INC.
Consultants in environmental analysis, planning, economics



**P.M. PEAK HOURLY VOLUMES AND AADT
INTERSECTION OF MAIN ST. & IDAHO ST.**



HAWORTH & ANDERSON, INC.
Consultants in environmental analysis, planning, economics



b. Probable Impact of the Proposed Action

The proposed Kalispell Mall Shopping Center development is planned in two phases, as follows:

	<u>Gross Leasable Area (GLA)</u> <u>(square feet)</u>	<u>Parking Spaces</u>
Phase I	279,339	1,679
Phase II	<u>73,529</u>	<u>121</u>
TOTAL	352,868	1,800*

The plan proposed by the developer for the mall layout shows three accesses to U.S. Highway 93: (1) aligned with Meridian Road intersection; (2) aligned with the Northridge Drive intersection; and (3) at the north edge of the site. A potential fourth access road would connect the mall to the south with Sunnyview Lane. Another potential access is being negotiated, which would enter at the northeast of the site, linking with the bend on Grandview Drive. The map on page 39 illustrates the developer's proposal for the mall and access arrangements.

The analysis of future traffic will be done in three steps. First, an assessment of the shopping mall traffic and its distribution will be made. Then, an assessment is made of the future regional traffic, or through-traffic, which will occur by 1990 independently of whether the mall is constructed or not. Finally, the shopping traffic is added to the future regional traffic in order to obtain the total volumes of the combined traffic.

(1) Shopping Traffic

A shopping center of this size is expected to generate 2.2 inbound vehicle trips per 1,000 square feet of GLA, and about 2.7 outbound vehicle

*-A ratio of 5.5 spaces per 1,000 square feet of gross leasable floor area is used to estimate total parking spaces.

trips per 1,000 square feet of GLA. These rates refer to the p.m. weekday peak street hour. At a total GLA of 352,868 square feet, the shopping trip attraction/production of the development would be 775 vehicles per hour (vph) inbound, and 975 vph outbound, during the p.m. peak hour. The 24-hour daily traffic generation has an average range of 30 to 50 trip ends per 1,000 square feet of GLA.

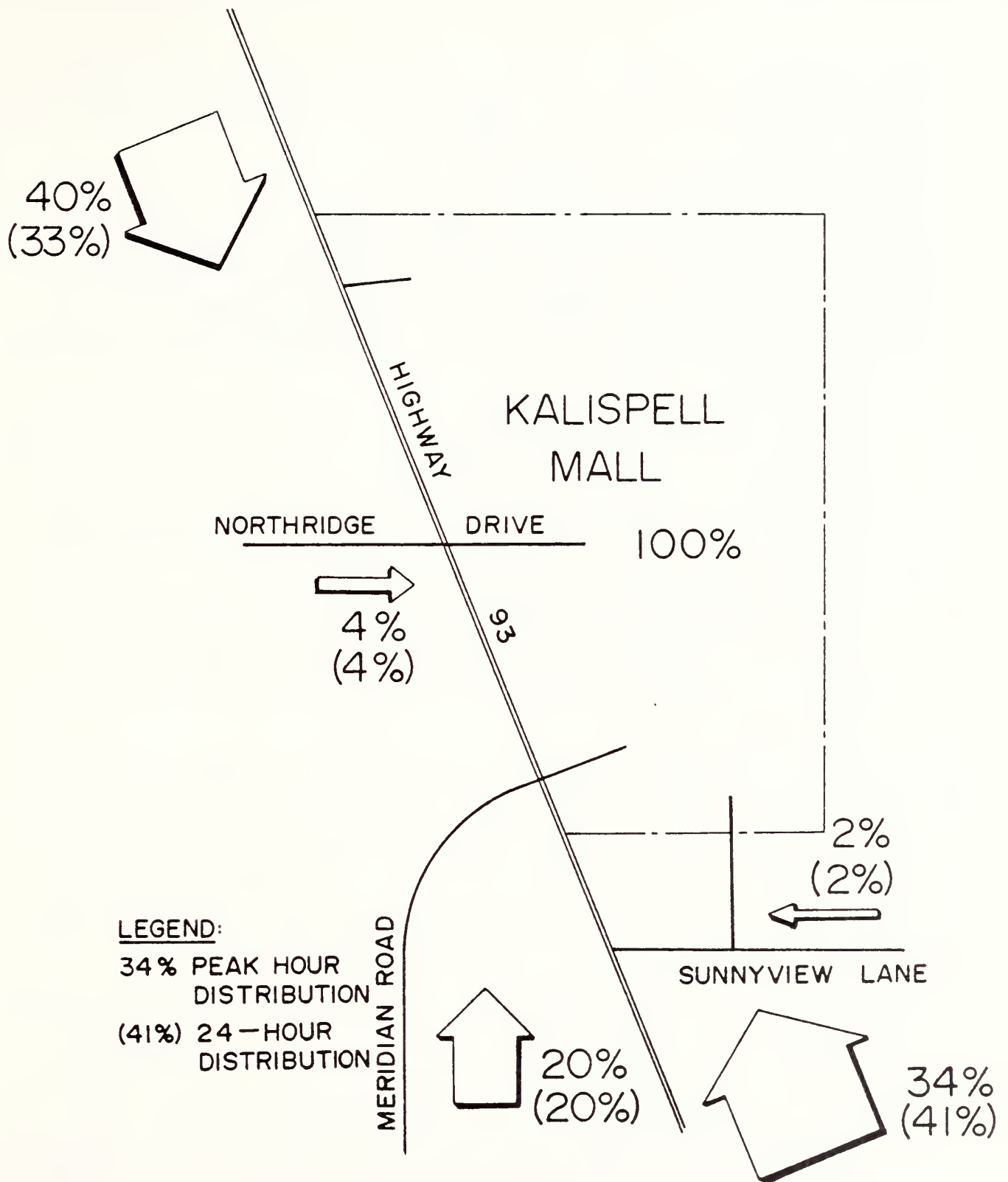
The Planning and Research Bureau of the Montana Department of Highways conducted a shopping center survey in 1974, and concluded that shopping centers in this general area generate 46.5 vehicle trip ends per 1,000 square feet per day. At 352,868 square feet of GLA, this translates into 16,408 vehicles per day in and out of the shopping center.

To establish the distribution of shoppers, a modified gravity model was used, of the form:

$$\Sigma \frac{P/d^2}{(P/d^2)}$$

where P is the 1990 projected population of a zone and d is the travelling distance from the zone to the shopping center. The 1990 population figures were obtained from the Market Study (1978) by George E. Bordner, Land Research Consultants, and from the 201 Facilities Plan (1978) report prepared by Wright-McLaughlin Engineers and Stahly Engineering and Associates. Travelling distances were measured from the centroids of these zones. The map on the following page illustrates the conclusions of this analysis. Shown are the directional percentages of shoppers on the different approach routes.

It is estimated that the p.m. peak-hour distribution would be different from the distribution of shoppers during a 24-hour period, particularly on



DISTRIBUTION OF SHOPPING TRAFFIC



not to scale

the U.S. Highway 93 route. During the peak hours, shoppers would tend to avoid the congested downtown area; therefore, the map shows a heavier northerly weight for the peak-hour distribution.

The outbound percentage distribution of shoppers would be about the same as the inbound percentages. The distribution shown in this map is based on the assumption that by 1990, Grandview Drive would be connected to the Evergreen area, thereby providing those residents with an alternative approach route to the mall.

The map on page 43 shows the volumes and turning movements on the streets and intersections adjacent to the site. These diagrams are applied to the street network as proposed by the developers of the mall. Alternative networks will be analyzed later in Section VI of this document.

The three proposed accesses would directly load U.S. Highway 93 with 1,585 vph (in and out) and 165 vph (in and out) on Sunnyview Lane.

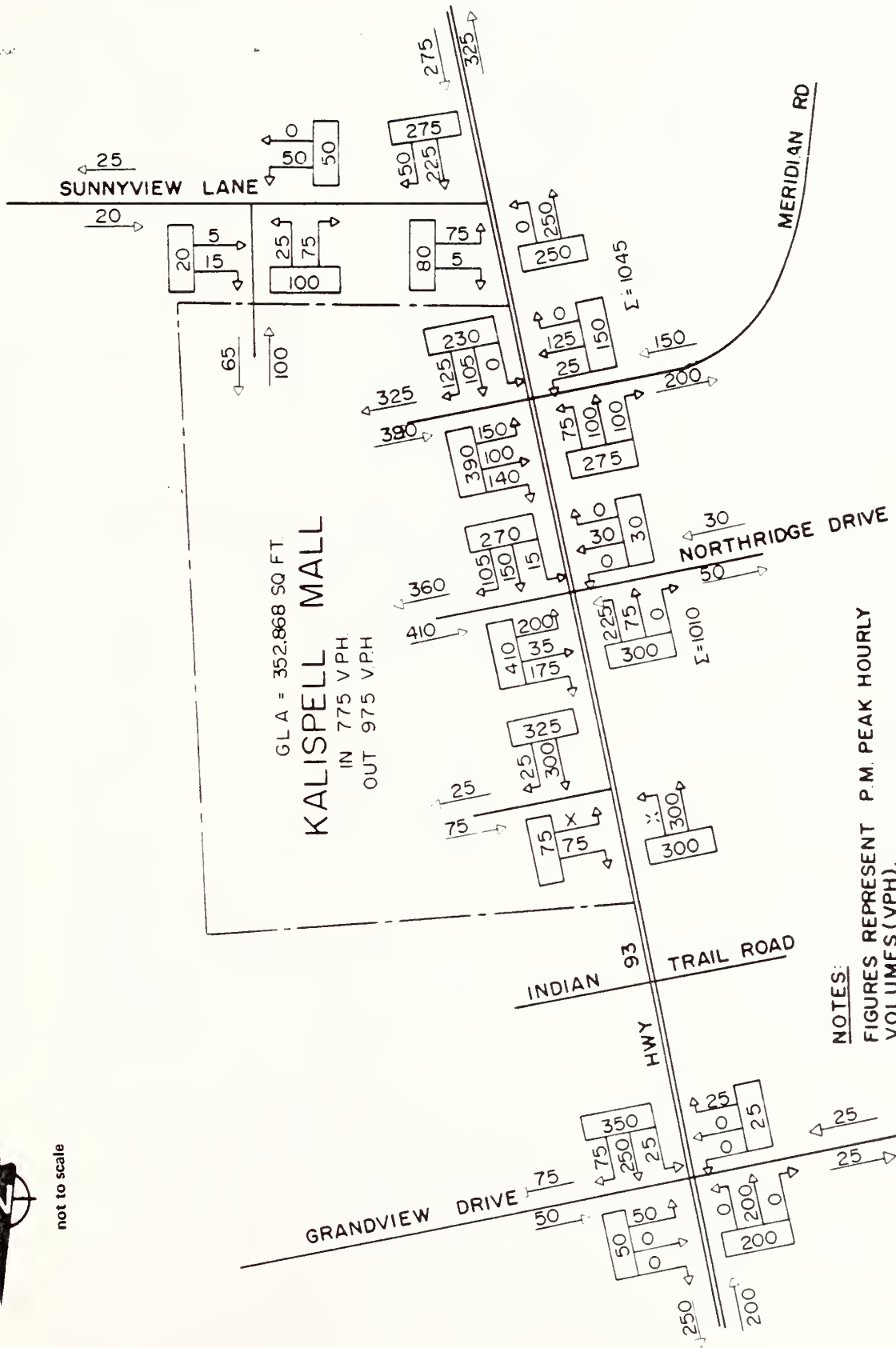
(2) Regional Traffic

The recent AADT counts were extrapolated to the year 1990, assuming an average compound growth rate of four percent per year. To arrive at the p.m. peak design hourly volumes, the AADTs were factorized and the turning movements were estimated, based on probable demand loads. The map on page 44 shows the 1990 p.m. peak-hour regional traffic.

In addition to simple extrapolation, this map reflects a separate analysis, assessing the probable future traffic generated by the developments in the Sunnyview Lane area. This includes a proposed expansion of the Kalispell Regional Hospital, additional commercial and office space, residential units, and a future nursing home facility. It was estimated that the infill of the new development in the Sunnyview Lane area, would generate an additional 450 vehicles inbound, and 450 vehicles outbound, during the p.m. peak hours, to a total of 650 vph inbound and 700 vph outbound.



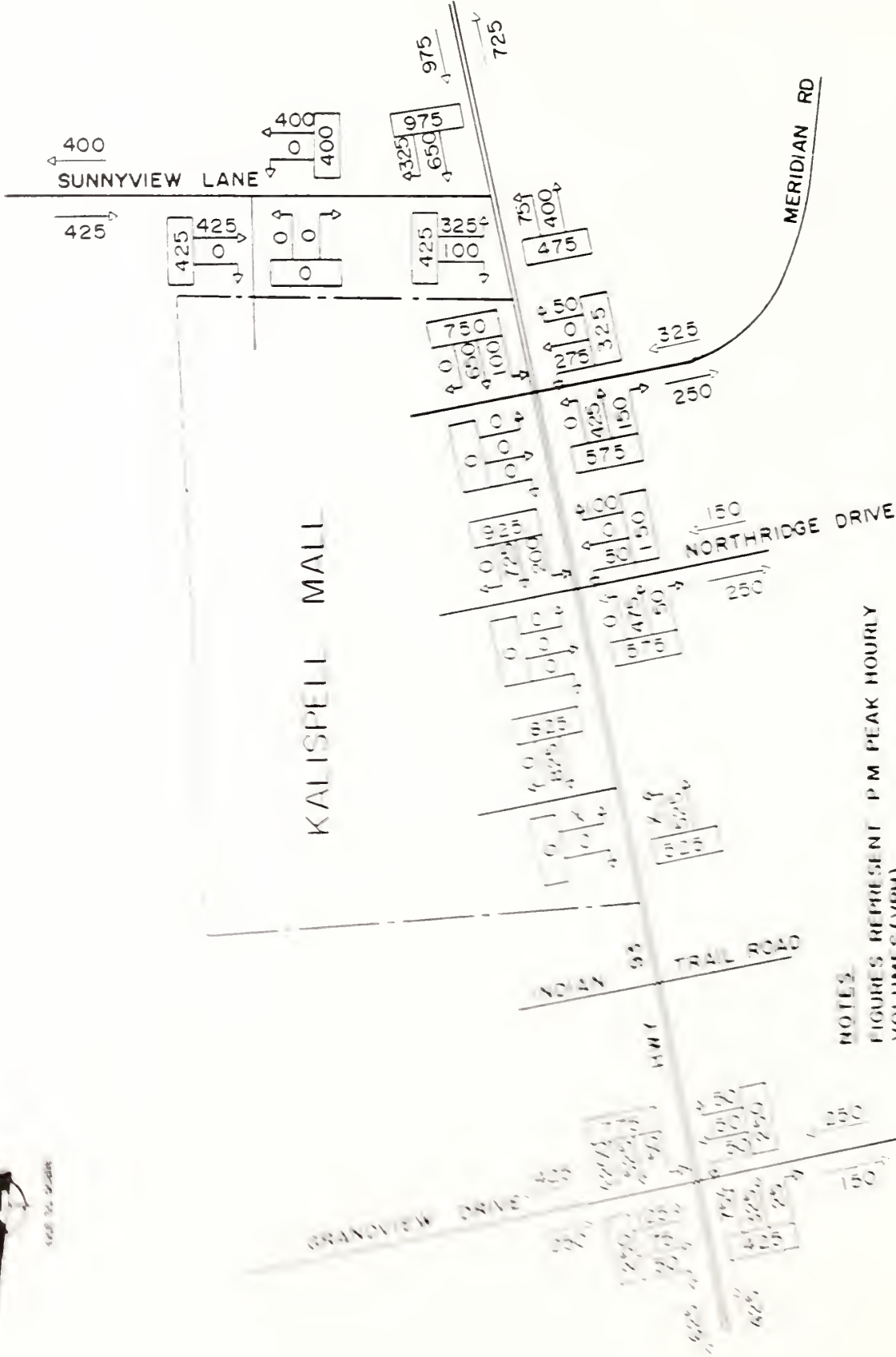
not to scale



SHOPPING TRAFFIC ONLY (P.M. PEAK HOUR)
ON EXISTING STREET NETWORK



Scale 1/4" = 100'



This additional traffic was distributed among the Sunnyview Lane/Conway Drive/Claremont Street accesses to U.S. Highway 93. The resulting traffic load on Sunnyview Lane is 400 vph inbound and 425 vph outbound in the p.m. peak. This is shown in the map on the previous page.

It should be noted that hospital p.m. peak hours (between 2:00 p.m. and 4:00 p.m.) generally occur earlier than the peak street hour (between 4:00 p.m. and 6:00 p.m.). This is already reflected in the traffic assignment above.

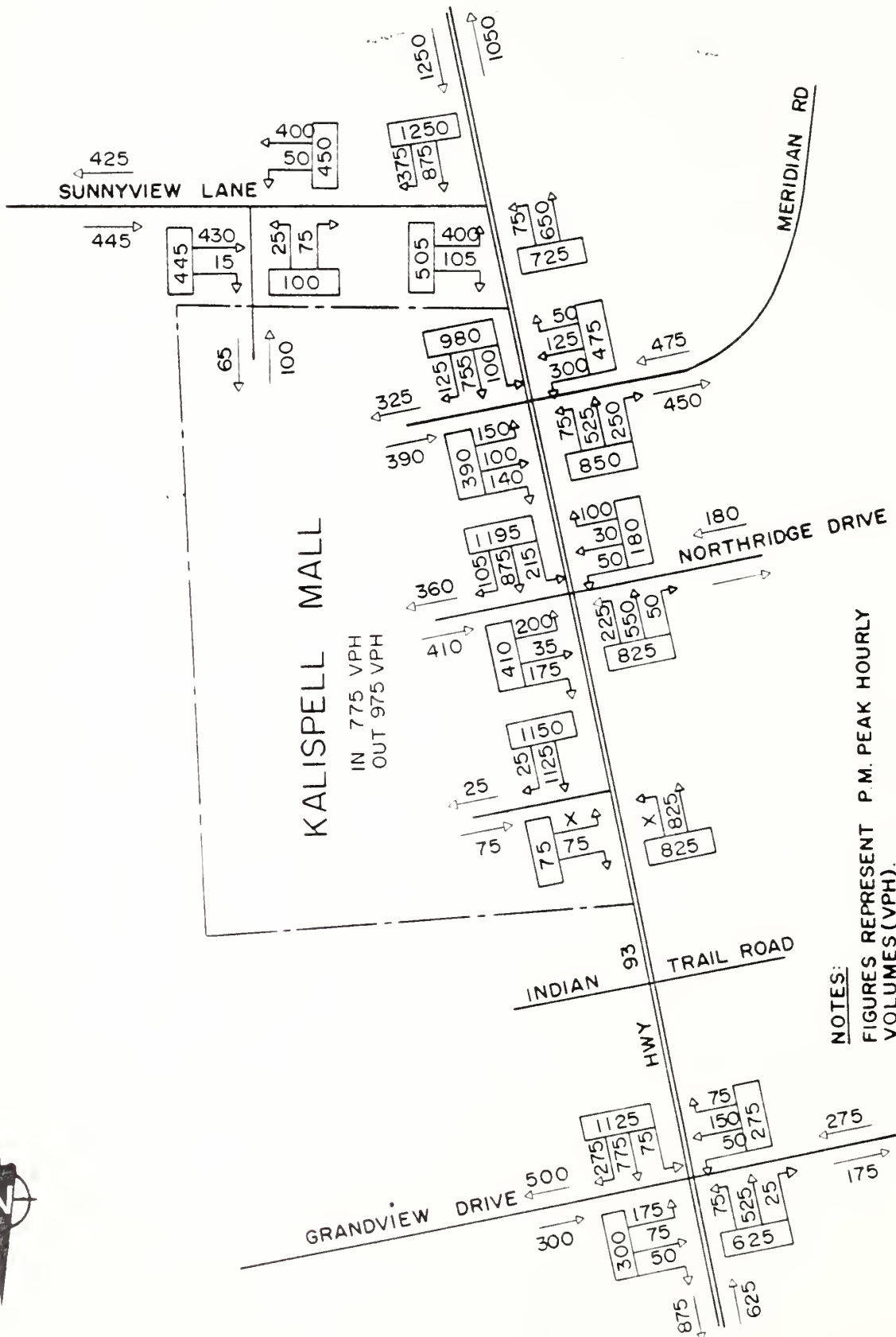
(3) Combined Traffic

The 1990 combined traffic results from adding the traffic volumes of the two previous maps. This map (shown on the following page) shows that the intersection of Meridian Road has a total approach volume of 2,695 vph, and the intersection of Northridge Road has a total approach volume of 2,610 vph. The intersection of Grandview Drive with U.S. Highway 93 would have a total approach of 2,325 vph.

The completed shopping center will add a future 1,750 vph (775 inbound and 975 outbound) to the adjacent roads during the p.m. peak hour. Of these, 1,585 vph (710 inbound and 875 outbound) will be directly accessed to and from U.S. Highway 93.

The access south to Sunnyview Lane would potentially carry 165 vph (65 inbound and 100 outbound), of which 125 vph would use the Sunnyview Lane intersection with U.S. Highway 93. The mall accesses facing Northridge Drive and Meridian Road will be the busiest, and will carry about 85 percent of the inbound/outbound volumes of the shopping center.

The 1990 combined regional plus shopping traffic volume on the intersection of Meridian Road and U.S. Highway 93 will be about 2,700 vph in the p.m. peak, with an estimated v/c ratio of 0.79 which is clearly acceptable and within the carrying capacity of the intersection.



NOTES:
FIGURES REPRESENT P.M. PEAK HOURLY
VOLUMES (VPH).
X - MOVEMENTS NOT ALLOWED.

1990 COMBINED REGIONAL & SHOPPING TRAFFIC (P.M. PEAK HOUR)
ON EXISTING STREET NETWORK

A v/c ratio of 1.0 means that the volume demand on the intersection equals the capacity available. A v/c ratio between 1.0 and 1.25 is still considered tolerable, especially during peak hours of operation. A v/c ratio over 1.25 would represent congested conditions. The volumes on the Northridge Drive intersection will be about 2,600 vph, at a v/c ratio of 0.82, which is also clearly acceptable.

Shopping traffic on the west leg of Northridge Drive will be light and only local in nature. However, because of the formation of a full intersection, residential traffic will have to suffer delays when entering and exiting the residential neighborhood. This is because of having to share gaps in the throughstream of traffic on U.S. Highway 93.

North of the site, the intersection volume of U.S. Highway 93 with Grandview Drive will have a total approach volume of 2,325 vph, of which 625 vph would be shoppers volume.

The traffic on the downtown intersection of U.S. Highway 93 (Main Street) and U.S. Highway 2 (Idaho Street) will increase by about 450 vph due to traffic generated by the mall.

It is expected that the future downtown circulation will be improved to provide better dispersion, and there will be optimization of traffic signal timing, and/or revised land arrangements. Coupled with traffic management methods, the capacity of this and other intersections should improve. Also, with the future availability of east-west routes such as the Grandview Drive extension and the improved Reserve Drive, some traffic will be diverted away from the downtown area.

c. Measures to Mitigate Adverse Impacts

The potential adverse impacts are a function of vehicular traffic generated. Some suggested mitigating measures which should improve the flow and circulation of traffic in the area follow.

Shopping center accesses with full turning movements should preferably be spaced a minimum of 500 to 600 feet apart. The internal access roads should preferably be 200 feet in length to mitigate potential traffic back-ups onto the highway.

It would be desirable to incorporate a strong pedestrian system linking the mall with nearby residential areas, particularly the Northridge area and with the medical/hospital complexes across Sunnyview Lane. This would encourage those living and working nearby to walk rather than drive to the mall.

The south access to Sunnyview Lane could be eliminated, thus providing a separation of hospital-related traffic from shopping center traffic.

It is recommended that the Meridian Road access be located at the south boundary of the site, thereby accommodating shopping center traffic anticipated for both Meridian Road and Sunnyview Lane accesses. This would allow flexibility for future servicing of adjacent parcels and possible extension of the road to the east.

The north access should be restricted to right-in/right-out access only, and spaced a minimum of 300 feet south of the Indian Trail Road. This action would mitigate left turning movements which could create potential hazards on U.S. Highway 93.

It would be desirable to plan for a future eastern access such as a connection onto Grandview Drive from the northeast area of the site. This would allow residents located north, east and south to access the site without driving onto U.S. Highway 93. Also, the future availability of better east-west routes such as the extension of Grandview Drive to Evergreen Drive would have merit in the planning of an east access to the site.

Also, it is anticipated that traffic on the downtown intersection of U.S. Highway 93 (Main Street) and U.S. Highway 2 (Idaho Street) will increase

due to traffic generated by the mall. Suggestions which may help mitigate the congestion at this intersection would be to increase the optimization of traffic signal timing, and other traffic management measures including right of way configuration. Also, improvements on another east-west route such as Reserve Drive or extending Grandview Drive to connect to Evergreen Drive would help relieve congestion at the Main-Idaho Street intersection.

d. Unavoidable Adverse Impacts

If mitigating measures to improve traffic circulation are not implemented, the anticipated increases in traffic volumes generated by the proposed project should be considered as significant adverse impacts.

2. Energy and Telephone Utilities

a. Existing Conditions

Electricity is provided to the Buffalo Hill area by the Pacific Power Company. Pacific Power Company officials have indicated it is within their carrying capacity to supply electricity to the site.²⁵ There is a power line located along U.S. Highway 93 directly across from the site.

The Montana Power Company supplies natural gas to the area. Officials within the Montana Power Company have indicated there is a gas main located along the east side of the U.S. Highway 93 right of way which could be tapped to supply gas to the site.²⁶

Telephone communication services in the area are provided by Northwestern Telephone Company. There are telephone conduits located in the immediate site area and Northwestern Telephone has indicated that additional conduits on-site can be installed.²⁷

b. Probable Impact of the Proposed Action

Plans for on-site electrical and gas systems have been submitted to the Pacific Power Company and the Montana Power Company. Connection of electrical

power to the site will entail dropping the power line down west of U.S. Highway 93 and crossing under the highway to the northwest area of the site. Power lines and transformers on-site will circle the shopping center underground.

There are gas mains in the immediate site area along the east side of the U.S. Highway 93 right of way. A direct connection to this gas main could be made to lines to be installed on the proposed site.

Design power loads for the shopping center are 20,349,000 British Thermal Units (BTUs) of gas and 6,322 kilowatts (KWs) of electricity per day. These power loads are based on peak-hour demand and are not reflective of the average amount of energy that will be consumed on-site. Estimates for daily energy consumption based on square footage are approximately 3,000 KWs for electrical usage and approximately 10 million BTUs of natural gas.

The Northwestern Telephone Company has indicated that telephone service can be provided to the site with no problem.

The gas, electrical, and telephone line distribution systems will be located underground. There may be some minor disruptions of services as the connections are made during the construction phase. However, these should be of short duration.

c. Measures to Mitigate Adverse Impacts

Minor disruptions of services during the construction phase should be mitigated by the short duration of these inconveniences. Cumulative impacts upon energy resources may be mitigated by those factors discussed in subsection 5 of Part B of this section. Early and close coordination between the developers and the companies supplying power and communication systems to the site would mitigate impacts upon these companies.

d. Unavoidable Adverse Impacts

The proposed project will require connections with existing distribution systems and the construction of new distribution systems on-site. There may be some minor disruptions of service as these connections are made.

3. Air Quality

a. Existing Conditions

The city of Kalispell experiences a seasonal trend towards high total suspended particulate (TSP) levels in the spring and lower levels in the winter.²⁸ Particulate generation in Kalispell is a result primarily of people and industrial activity in the immediate area. During dry periods and the summer, particulates are more easily generated than in the winter wet season.

The table on the following page is a summary of total suspended particulate levels recorded in 1979 for the months January through September. During this period Kalispell TSP levels exceeded the Montana standard of 200 micrograms/cubic meter three times; the federal primary standard of 260 micrograms/cubic meter was exceeded twice; and the federal secondary standard of 150 micrograms/cubic meter was exceeded five times in Kalispell. Federal and state standards for all of the major air pollutants are shown in the tables on page 54.

Other air quality parameters measured in the Flathead Basin area include sulfates and nitrates. There were no problems relative to these pollutants in terms of ambient conditions. No data was available on carbon monoxide parameters in the area. A summary of data for 1979 measured parameters of air quality for Kalispell and the Glacier Airport site is provided in the table on page 55.

AIR QUALITY DATA REPORT
STATE OF MONTANA DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
Report Date: 12/17/79

Parameter: Suspended Particulate Units: Micrograms/Cubic Meter Min Det: 1 Decimal Code: 0
Collection Method: Hi-Vol Analysis Method: Gravimetric Sampling Interval: Daily
Site: Kalispell - Strom - Hivol Project: Population-Oriented Surv. Agency: State

Montana Standard: 000200 Micrograms/Cubic Meter - 24 Hour Max - 1% of Time
Federal Primary Standard: 000260 Micrograms/Cubic Meter - 24 Hour Max - 1 Per Year
Federal Secondary Standard: 000150 Micrograms/Cubic Meter - 24 Hour Max - 1 Per Year

Day	Month						No.	Mean	Maximum
	Jan.	Feb.	March	April	May	June	July	August	September
01								98	
02		56				76			
03	58			110					
04			88						
05									
06									
07						58		156	79
08		59					41		
09	59								
10			289						
11									81
12									
13								62	
14		59				51	80		
15	37				118				
16			74						
17									
18									208
19								50	
20						56	119		

AIR QUALITY DATA REPORT (Cont.)

<u>Day</u>	<u>Jan.</u>	<u>Feb.</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>Month</u> <u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>No.</u>	<u>Mean</u>	<u>Maximum</u>
21	0				135					2	68	135
22			343							1	343	343
23												
24									136	1	136	136
25								33		1	33	33
26						75	140			2	108	140
27	52			184	67					3	101	184
28			28							1	28	28
29												
30												
31								41		1	41	41
No.	5	3	5	2	3	5	4	6	4	37		
Mean	41	58	164	147	107	63	95	73	126		93	
Max	59	59	343	184	135	76	140	156	208			343
G Mean	0	57.95	12.56	42.26	2.14	62.37	85.97	63.16	15.99			
Number of Times Above Montana Value: 3												
Number of Times Above Federal Primary Value: 2												
Number of Times Above Federal Secondary Value: 5												

FEDERAL AMBIENT AIR QUALITY STANDARDS

<u>Pollutant</u>	<u>Primary</u>		<u>Secondary</u>		<u>Averaging Time</u>
	<u>(ug/m³)</u>	<u>(ppm)</u>	<u>(ug/m³)</u>	<u>(ppm)</u>	
Particulates	75	---	60	---	Annual
	260 ^a	---	150 ^a	---	24-Hour
Sulfur Dioxide	80	0.03	---	---	Annual
	365 ^a	0.14	---	---	24-Hour
Carbon Monoxide	---	---	1,300 ^a	0.5	3-Hour
	10,000 ^a	9.0	---	---	8-Hour
	40,000 ^a	35.0	---	---	1-Hour
	160 ^a	0.08	---	---	1-Hour
Photochemical Oxidants	160 ^a	0.24	---	---	3-Hour (6-9 a.m.)
Hydrocarbons	100	0.05	---	---	Annual
Nitrogen Oxides	1.50	---	---	---	Quarter
Lead					

Note: ^aNot to be exceeded more than once/year.

MONTANA AMBIENT AIR QUALITY STANDARDS

<u>Pollutant</u>	<u>Standard</u>	<u>Averaging Time</u>
Suspended Particulates	75 ug/m ³	Annual
	200 ^a ug/m ³	24-Hour
Sulfur Dioxide	0.02 ppm	Annual
	0.10 ^b ppm	24-Hour
	0.25 ^c ppm	1-Hour
Settled Particulates	15 T/mi ²	3-Month
	(residential area)	
	30 T/mi ²	3-Month
Suspended Sulfates	(industrial area)	
	4 ug/m ³	Annual
Reactive Sulfur	12 ^d ug/m ³	---
	0.25 mg SO ₃ /	Annual
	100 cm ² /day	
	0.50 mg SO ₃ /	1-Month
	100 cm ² /day	
Fluorides, Total in		
Air (as HG)	1 ppb	24-Hour
Fluorides (Gaseous)	0.3 ug/cm ² /28 days	28-Days

Notes:

^aNot to be exceeded more than one percent of the days in a year.

^bNot to be exceeded more than one percent of the days in a 3-month period.

^cNot to be exceeded for more than one hour in any four consecutive days.

^dNot to be exceeded more than one percent of the time.

COMPARISON OF AIR QUALITY LEVELS DURING 1979
FOR KALISPELL AND GLACIER AIRPORT
(micrograms/cubic meter)

	<u>Maximum Reading</u>	<u>Second Highest Reading</u>	<u>Arithmetic Mean</u>
<u>Total Suspended Particulates</u>			
<u>TSP¹</u>			
Kalispell (Jan. - Sept.)	343	289	93
Glacier Airport (Mar. - Oct.)	120	117	62
<u>Sulfates²</u>			
Kalispell	8.5	7.5	5.3
Glacier Airport	4.5	4.0	2.3
<u>Nitrates²</u>			
Kalispell	6.6	4.1	2.6
Glacier Airport	5.6	3.5	1.5

Sources:

¹State of Montana Department of Health and Environmental Sciences, Air Quality Data Report, December, 1979.

²Flathead River Basin Environmental Impact Study Air Quality Bureau, Environmental Sciences Division, Department of Health and Environmental Sciences, September, 1979.

The Kalispell sulfate levels indicate highest concentrations occurring in January, 1979 and lowest concentrations in May, 1979. The Kalispell site recorded highest average nitrate levels in February, 1979 and lowest levels in October, 1978.

The distribution of mixing heights was analyzed in the Flathead River Basin Environmental Impact Study for the Kalispell Airport site. The mixing height has important implications for air quality since it indicates that dispersion would be seriously inhibited during the winter months when mixing heights tend to remain low throughout the day.²⁹ (See the tables on page 57.)

The most common inversion base height was near the surface for morning inversions throughout most of the year. These surface morning inversions are generally strong. The most common inversion base height during the afternoons is above 1,000 meters with the exception of weak surface-based inversions occurring in January and February. The elevated inversions are usually strong during the winter months and weak to moderate during the remainder of the year.

b. Probable Impact of the Proposed Action

Development of the project site will have an impact on air quality, particularly in terms of total suspended particulates during the construction phase due to earth moving and site preparation. These impacts will be of short duration. The long-term impact will be a reduction of locally generated suspended particulates (dust) since the presently unsurfaced exposed soils will be surfaced and landscaped.

Once the shopping center is completed more energy will be consumed in heating, cooling, lighting, and servicing the facility, thus impacting generally and to a very minor degree the ambient air quality in the site vicinity.

AVERAGE MORNING AND AFTERNOON MIXING HEIGHTS (METERS),
FROM AVERAGE MONTHLY TEMPERATURE TRACES - AIRPORT SITE
Kalispell, Montana

	<u>Month</u>	<u>Morning</u>	<u>Afternoon</u>
1978	July	135	1,300
	August	75	1,800
	September	100	1,800
	October	50	1,420
	November	135	1,200
	December	815	515
1979	January	115	195
	February	315	200
	March	95	980
	April	150	900
	May	90	1,500
	June	85	1,500

PERCENT FREQUENCY OF OCCURRENCE OF PERIODS WITH
INVERSION(S) PRESENT FROM ACOUSTIC RADAR - AIRPORT SITE
Kalispell, Montana

<u>Month</u>	<u>0001-0600 MST</u>		<u>0601-1200 MST</u>		<u>1201-1800 MST</u>		<u>1801-2400 MST</u>	
	<u>First</u> <u>Inversion</u>	<u>Second</u> <u>Inversion</u>	<u>First</u> <u>Inversion</u>	<u>Second</u> <u>Inversion</u>	<u>First</u> <u>Inversion</u>	<u>Second</u> <u>Inversion</u>	<u>First</u> <u>Inversion</u>	<u>Second</u> <u>Inversion</u>
1978								
Jan	92.6	7.4	85.2	3.7	75.0	0.0	92.9	7.1
Feb	96.4	3.6	100.0	0.0	46.4	3.6	85.7	14.3
Mar	100.0	6.5	90.3	0.0	25.8	0.0	93.5	6.5
Apr	100.0	10.0	80.0	0.0	14.3	0.0	100.0	0.0
May	94.7	10.5	68.4	5.3	10.0	0.0	80.0	0.0
Jun								
Jul	95.8	12.5	79.2	0.0	7.7	0.0	100.0	0.0
Aug	96.4	10.7	32.1	3.6	0.0	0.0	81.5	7.4
Sep								
Oct	94.7	10.5	78.9	15.8	25.0	0.0	100.0	20.0
Nov	66.7	13.3	60.0	10.0	66.7	6.7	86.7	16.7
Dec	87.1	9.7	80.5	6.5	58.1	0.0	93.5	9.7
1979								
Jan	83.9	22.6	83.9	16.1	77.4	9.7	87.1	22.6
Feb	92.3	7.7	92.3	15.4	76.9	7.7	92.3	15.4
Mar	100.0	12.5	62.5	12.5	88.9	0.0	66.7	0.0

Source: Department of Health and Environmental Sciences, "Flathead River Basin Environmental Impact Study", September, 1979.

The primary air quality impact operation of the mall will have is the emission of carbon monoxide from automobile trips to and from the site. As explained in subsection 1 of Part B of this section, the approximate number of vehicle trips that will be generated is 16,408 per day. These trips represent one-way excursions into or from the shopping center. Regionally, it is anticipated that the facility will not cause any significant increase in levels of carbon monoxide. In fact, a net reduction may be realized due to the fact that many of the trips will be captured from existing traffic and that the location of the shopping center may reduce the distance people living in the surrounding area have to drive to shop.

The local micro-scale CO impacts of the development of the mall have been estimated using a proportional rollback model. A detailed explanation of the model and its use in the present analysis is included in Appendix A to this EIS.

The results of the analysis show that without the operation of the mall the existing maximum 8-hour CO concentration of four parts per million (ppm) would gradually decrease over the next several years. This is primarily the result of new vehicle emission control devices that reduce CO emissions. When the traffic generated by the proposed mall is added the results are somewhat different. At the intersection of U.S. 93 and Meridian Road the results indicate that the current estimated concentration of four ppm will increase to 7.9 ppm as a result of the additional traffic generated from the shopping mall. This level will decrease with time, reaching a level of approximately 5.7 ppm by 1990. In no case will the estimated CO concentrations exceed the federal 8-hour ambient standard for CO of 9 ppm.

It appears from the analysis that the primary air quality impact of the shopping mall will be to create localized CO concentrations along the primary access corridor to the mall, with the highest concentration occurring at the intersection of U.S. 93 and Meridian Road. The proposed elimination of access to the mall from Sunnyview Lane would reduce traffic and thus CO concentrations in the area that contains several sensitive pollutant receptors, including a hospital.

The proposal will require at least one traffic control light at an access point along U.S. Highway 93 to be located at the intersection of Northridge Drive or at Meridian Road. Such a light will be installed when the levels of traffic at either intersection warrant the addition, which is determined by certain minimum levels and verification by the State Department of Highways. The placement of a traffic control light at either of these intersections may cause more idling traffic and potentially increase carbon monoxide emissions in the area.

c. Measures to Mitigate Adverse Impacts

During the construction phase, the potential suspended particulate (dust) problem which might occur during earth reconfiguring activities can be mitigated through the use of standard dust control techniques used by the contractors. It is recommended that all contracting documents relative to this phase of the project include the provision for use of dust control techniques.

Since the potential air quality impact will be felt primarily in vehicle-produced carbon monoxide, mitigating measures must relate to either better emission control devices for the individual automobiles or better traffic movement in the area for the shopping-center-oriented traffic. The provision for better CO control because of better emission control devices is the

prerogative of the federal government. Facilitating better traffic movement in the area is discussed in subsection 1 of Part B of this section.

d. Unavoidable Adverse Impacts

An increase in local levels of carbon monoxide at the mall will be an unavoidable impact until individual automobile emission control devices become sufficient in numbers and efficiency to generally reduce the CO concentrations.

4. Noise

a. Existing Conditions

The major urban noise generators that affect the Kalispell area include automobile traffic, railroad traffic, aircraft overflights, industrial operations, and residential mechanical equipment (lawn mowers, snow blowers, chain saws, air conditioners, etc.). In relation to the proposed site, automobile and truck traffic on U.S. Highway 93 represents the major noise source. There are no railroad rights of way or industrial noise sources in the immediate area of the site.

There are several sensitive noise receptors within the project area. This includes the Kalispell Regional Hospital, medical office buildings, a nursing home, and residences. Their locations may be noted on the map on the following page.

The hospital and medical buildings are located south of the site across Sunnyview Lane. Some residential apartments and a recreation center are also located directly south of the site, and the nursing home is farther to the south just north of Crestline. A residential area is located directly north of the site and other residences are located to the east and southeast and across U.S. Highway 93 to the west.

In describing a noise environment for the purpose of assessing its impact on people, it is customary to select a frequency-weighting measure which reflects the human ear's lack of sensitivity to low frequencies. The scale of a standard sound level meter has such a frequency response characteristic and is widely used in environmental noise surveys and for noise specification purposes. A-weighted noise levels are expressed in decibels-A, symbolized by "dBA". All noise levels discussed in this EIS are A-weighted. The figure on page 62 correlates sources and conditions with typical A-weighted noise levels.

It is important to note that dBA measurements represent sound pressure or energy. The dBA scale is an exponential progression, which may be illustrated by the following logarithmic representation:³⁰

LOGARITHMIC SCALE REPRESENTATION

60 decibels	=	10 times as intense as 50 dBA
70 decibels	=	100 times as intense as 50 dBA
80 decibels	=	1,000 times as intense as 50 dBA
90 decibels	=	10,000 times as intense as 50 dBA

It should also be noted that beyond 50 feet noise decreases by six dBA for every doubling of distance from the noise source. For example, a noise level of 80 dBA at a distance of 50 feet from the noise source would be reduced to approximately 74 dBA at a distance of 100 feet from the noise source.

A 10 dBA increase in noise is subjectively judged as roughly a doubling of the loudness. Hence, it is not surprising that when average noise levels increase by 10 dBA, the community response is often vigorous. The figure on page 63 shows how perceived loudness changes with decibel changes.

COMMON NOISE LEVELS

dBa

130	--	THRESHOLD OF PAIN
	--	
120	--	CHIPPING ON METAL
	--	
110	--	ROCK BAND
	--	
100	--	JACKHAMMER
	--	JET TAKEOFF (1/2 Mile)
90	--	THRESHOLD OF HEARING DAMAGE
	--	MOTORCYCLE (Urban Residential)
80	--	
	--	BUSY FREEWAY
70	--	ICE CREAM TRUCK WITH MUSIC (Urban Residential)
	--	POWER LAWN MOWER (Urban Residential)
		CHILDREN PLAYING (Urban Residential)
60	--	NORMAL CONVERSATION
	--	
50	--	RADIO PLAYING MUSIC (Urban Residential)
	--	BIRD (Normal Suburban Area)
40	--	SUBURBAN NEIGHBORHOOD (Distant Traffic)
	--	
30	--	
	--	
20	--	QUIET RURAL AREA (No Traffic)
	--	
10	--	
	--	
0	--	THRESHOLD OF AUDIBILITY

**DECIBEL
CHANGE**

APPARENT LOUDNESS

**I
N
C
R
E
A
S
E**



**D
E
C
R
E
A
S
E**

+ 20

4 TIMES AS LOUD

+ 10

TWICE AS LOUD

0

ORIGINAL SOUND

- 10

1/2 AS LOUD

- 20

1/4 AS LOUD

HOW LOUDNESS CHANGES WITH DECIBEL CHANGES

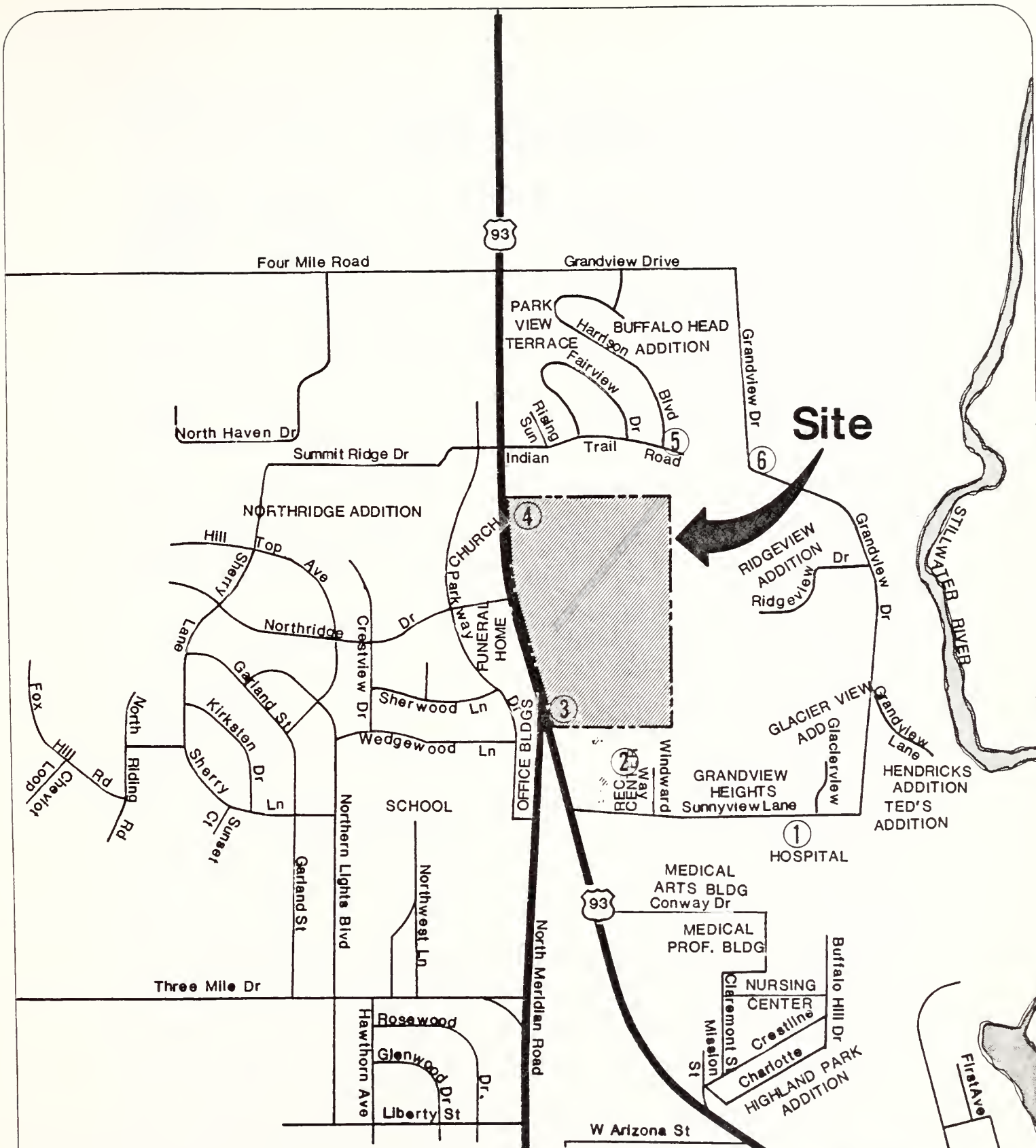
A noise survey of ambient conditions in the site vicinity was conducted on January 10 and 11, 1980. Measurements were recorded on and near the site at different times of day in order to establish the actual noise conditions. A 1565-B sound level meter calibrated on an A-weighted noise level was used in the noise survey. The table on the following page reflects existing noise levels on and near the proposed project site. The map on page 65 shows the locations at which noise levels were recorded.

The highest noise readings were associated with vehicular traffic on U.S. Highway 93 and road graders removing snow from the roads in the area. The lowest recorded levels observed were in locations 5 and 6 north and northeast of the site.

b. Probable Impact of the Proposed Action

The construction activities on-site will produce the most significant noise levels associated with the proposed project. The degree of the construction noise impact will vary in relation to the particular phase of construction that is taking place. The most intrusive noise will be generated by equipment used in grading for site preparation and laying water, sewer, and utility lines. Earthmoving equipment, which includes compactors, back-hoes, tractors, scrapers, graders, pavers, and trucks, generates noises ranging from 72 to 96 dBA (observed from a distance of 50 feet). Materials handling equipment, including concrete mixers and pumps, generate sounds ranging from 75 to 88 dBA. Pumps, generators, and compressors generate sounds ranging from 70 to 87 dBA, and jackhammers generate peak sounds of around 90 dBA.

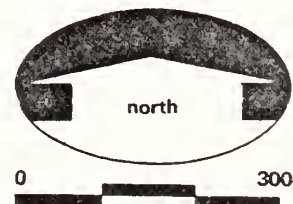
The equipment used in building structures include foundation preparation and laying equipment and machinery related to erecting the structures.



NOISE MONITORING SITES



HAWORTH & ANDERSON, INC.
Consultants in environmental analysis, planning, economics



EXISTING NOISE LEVELS dBA
PROPOSED PROJECT SITE¹

<u>Location</u>	January 10, 1980		January 11, 1980	
	<u>Ambient</u>	<u>Traffic</u>	<u>Ambient</u>	<u>Traffic</u>
1. Hospital parking lot (adjacent to Sunnyview Lane)	48	54	50	55
2. Sunnyview Lane (proposed access site)	52	58	48	51-60
3. Highway 93 and Meridian Road, west side of property (20' into site)	59	64-68	50-52	64-68
4. Highway 93, north-west corner of site (20' into site)	55	60-65	70 ²	74 ²
5. Indian Trail Road and Harrison Boulevard	45	56	45	50 ²
6. Grandview Lane (at curve east of site)	45	---	46	52 ²

Notes:

¹ Conditions were overcast and cold with snow on the ground.

² Noise from road graders on Indian Trail Road.

Foundation-related activities involve the use of the equipment mentioned in the previous paragraph. Noise peaks related to erecting a building are those generated from hammering and sawing and from the traffic which is hauling supplies and materials. Noises generated by these activities should range from 70 to 90 dBA. It should be emphasized that all of these noise levels are for a receptor distance of 50 feet. Noise levels generated by construction activities on-site will be short-term and confined to normal working daylight hours.

An important factor to consider in analyzing the impact of noise on people is the reduction in noise that can be expected from the walls of the building that they are occupying. The indoor reduction provided by single-family detached units and multi-unit buildings is shown below.

<u>Type of Building</u>	<u>Approximate Noise Reduction in dBA</u>	
	<u>Windows Open</u>	<u>Windows Closed</u>
Single Family Detached		
Warm Climate	9-13	20-27
Cold Climate	13-21	25-30
Multi-unit Apartments	20-30	

Source: Wyle Research Report: Community Noise Countermeasures Cost-Effectiveness Analysis, July 1975.

It should be noted that the terrain and tree screening in an area can cause changes in noise environment related to rather small shifts in position of noise monitoring points. Conceivably, one location can yield lower ambient noise levels than those measured at another location, yet both can be exposed to the same levels of identifiable noise produced by the proposed activity. Thus, the noise generated by specific off-site sources would be more noticeable where ambient levels are lower. A person sitting in his backyard on a quiet night could conceivably notice the noise produced by activities in the distance even though such noise would hardly be measurable on a noise meter.³¹

Due to the distance from the project site, air and ground absorption, and an estimated noise attenuation of 25 to 30 dBA from structural sound absorption, the actual noise levels at receiving properties will be much lower than levels generated on the project site.

Residential properties directly north of the site will be most affected by noise generated on-site during the construction phase. Properties to the east and west should not be significantly affected due to the increased distance from site activities and the sloping terrain. There are some apartments located southeast of the site and north of Sunnyview Lane which will receive noticeable noise levels during the construction phase. But again, due to attenuation, indoor noise levels should be acceptable.

The most critical receptor in the area will be the Kalispell Regional Hospital. The hospital is located approximately 1,200 feet southeast of the site. Given this distance and noise attenuation factors the probable impact of the proposed project during construction will be a noise level of 40 to 50 dBA indoors.

Probable noise levels during the operation of the proposed project will be primarily generated from traffic. The U.S. Department of Housing and Urban Development has identified the noise levels of common sounds. Of these, it is important to note that busy streets have typical levels up to 80 dBA, while quiet automobiles at low speeds generate typical levels of 50 dBA. By comparison, the interior of a department store should have a typical level of 70 dBA. Noise levels generated during the operational phase will be less than levels generated during construction of the proposed project.

The operational impact on the Kalispell Regional Hospital will be much less than the construction impact. Sound levels on the exterior north and

west walls of the hospital will be around 50 dBA--similar to existing levels generated by passing traffic. Given structural absorption factors, the interior noise levels should be 10 to 25 dBA less than that noise generated by activities within the facility. Thus, the operational noise impact will be negligible.

Both construction and operational activities of the shopping center will occur during daytime hours. Considering this factor, it can be expected that even less potential intrusion will occur during the critical nighttime hours of operation for the hospital facility.

c. Measures to Mitigate Adverse Impacts

In addition to the existing attenuation factors previously noted, noise levels resulting from construction will be mitigated to some degree by the temporary nature of the activity. Also, the limiting of construction activities to normal working daylight hours will eliminate construction noise during the night. Noise levels resulting from the operation of the facility may be mitigated by providing a sound-absorbing buffer through the careful use of landscaping and screening on-site. Mechanical equipment should also be screened, and the quietest equipment available should be used.

d. Unavoidable Adverse Impacts

Noise generated by the proposed project will unavoidably intrude upon existing ambient noise levels. The intrusion will be most noticeable during construction activities which will be temporary in nature. Operational noise will be generated from increased traffic in the area. The current ambient noise levels in the immediate area of the site will increase slightly with an increase in traffic volumes to and from the site.

5. Energy Use

a. Existing Conditions

There is no energy demand or consumption related to the present undeveloped site.

b. Probable Impact of the Proposed Action

During the construction of the project an indeterminate amount of electrical energy and fuel will be consumed. This includes the direct consumption by construction equipment required to clear the site, grade it, and erect the structures. Indirect consumption will include the energy required to produce the materials for construction and transport them and the workers to the site. Detailed estimates are not available for the amounts of energy required. Electrical power will be supplied to the site by Pacific Power Company, and natural gas will be supplied to the site by the Montana Power Company. (See subsection 2 of Part B of this section for further information.)

The operation of the completed facility will also involve two kinds of energy consumption. Direct consumption will result from the use of electricity for power, lighting and air conditioning, and the use of natural gas for heating the buildings.

The shopping center's design power loads have the capacity for 20,349,000 BTUs of gas daily for heating the building. This design is for peak usage and the average amount of natural gas used daily will be approximately 10 million BTU.

The electrical capacity design for the facility is 6,322 KWs per day. Most electrical usage on-site will be for lighting and air conditioning. Estimated average electrical consumption for the mall facility is approxi-

mately 3,000 KWs per day according to Pacific Power Company's calculations, which are based on total square footage of the shopping center.

These figures represent a cumulative impact upon the nonrenewable gas resources and some impact upon the potentially critical electrical energy situation.

Indirect consumption of energy from the operation of the facility should be focused on transportation. The geographical situation of the project in relation to the market area served will determine both the number of projected trips and the distance shoppers travel to the shopping center, which in turn will determine the indirect consumption of fossil fuels.

The vehicular trips generated by the center's customers and employees will consume an undeterminable amount of energy in the form of fossil fuels. Although the shopping center will attract shoppers from the outlying market area, many will be captured that are already traveling on U.S. Highway 93 en route to other destinations. Also, residents in the Buffalo Hill area will have a shorter traveling distance to shopping facilities offered at the center.

c. Measures to Mitigate Adverse Impacts

During the construction phase, the impact upon energy consumption may be mitigated by careful work programming.

Energy conservation during the operational phase of the proposed project should be a function of the facility design. The design of the mall with buildings attached will result in less energy use than single detached buildings. In addition, the use of airlock or vestibule entries will prevent the buildings from emptying heat when the doors are opened.

Many other energy conservation techniques are available which could be employed in this facility. Conservation features such as design, type of

materials used, and insulation of the buildings to retain potential heat loss should be considered. Recommended resistance value of insulation designated by "R" value is as follows: ceilings, R-38; walls, R-19; and floors, R-19 to R-22. In addition, berming and landscaping around the perimeter of the facility can help maintain temperature levels and reduce heat loss. It is recommended that the proposed facility be designed with energy conservation as a primary factor and that thorough energy lifecycle studies be made in order to choose the best environmental control and lighting systems for this project. The completed building should comply with the Code for Energy Conservation in New Building Construction, which is enforced by the City of Kalispell Building Department.³²

d. Unavoidable Adverse Impacts

The proposed project will consume energy during both construction and operation. Additional indirect energy impacts related to transportation fossil fuel consumption will be primarily a function of site location and may be partially mitigated by the emphasis on energy conservation in transportation modes.

6. Water

a. Existing Conditions

The project site is not within the Kalispell corporate limits and is not included in the Buffalo Hill Service District. Areas immediately north, west and south of the site are hooked up to the Kalispell Water Distribution System as part of the Buffalo Hill Service District. This service district is supplied water from a 100,000-gallon elevated gravity tank, an automatically operated booster pump station which is connected to the city's grid system, and a 1.5- and 2.5-million-gallon ground storage reservoir. The City of Kalispell has just completed drilling a new 2,000 gpm well pump with a 250 KW auxiliary generator near the gravity tank.³³

The water is not treated and has a pH average of 8.14. Water hardness averages 200 ppm or about 11.66 grains per gallon. Water iron content averages about 0.02 ppm. The high-pressure Buffalo Hill district (gravity tank) has an average daily consumption of about 200,000 gpd and a maximum use of about 400 gpd.³⁴

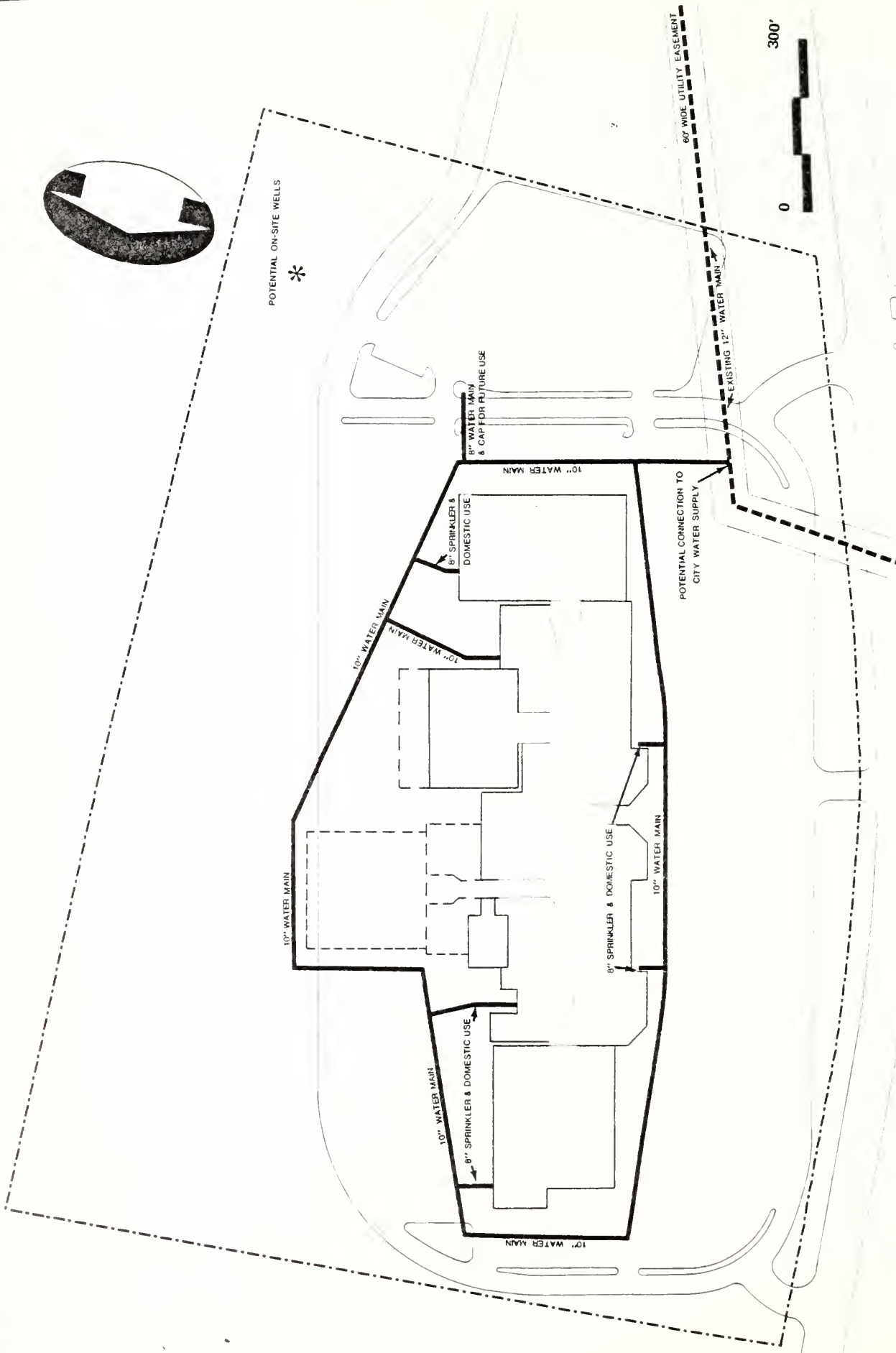
A 12-inch water main located in an easement right of way owned by the City of Kalispell traverses the southwest corner of the proposed site. (See the following map.) This would be the most practical available source of water supply for domestic and fire protection services, but according to Kalispell's city policy in order to tap into the 12-inch water main the site must be annexed to the city. Since the proposed project is currently located outside the city limits of Kalispell, special approval to use city water would be necessary. If this is not granted the developers propose to develop their own water system on-site.

b. Probable Impact of the Proposed Action

The current plans for providing water supplies on-site include drilling two wells. One well would be for domestic requirements of the shopping center which is anticipated to use less than 100 gallons per minute. The second well would be for fire requirements. A water tower with storage capacity of approximately 150,000 to 200,000 gallons will be constructed also to meet Insurance Service Organization Requirements.³⁵

The average water consumption for the mall facility and landscaped area will be 18,768 gallons per day, or 6,850,320 gallons annually (based on water usage value of 0.0475 gallons per square foot).*

*Stahly Engineering and Associates. These figures represent upper values calculated from actual water usage records on other malls built by Developers Diversified.



PROPOSED WATER SYSTEM

Ground water supplies from the underlying aquifers in the area are generally good and should not be adversely impacted by the proposed project. A further discussion of the existing ground water situation in the site area can be found in subsection 2 of Part A of this section.

c. Measures to Mitigate Adverse Impacts

No adverse impacts to the quality or quantity of water supplies are anticipated with the development of the proposed project. However, due to the small areal extent of the perched aquifer in the area northwest of Kalispell, it is recommended that any wells drilled on-site be drilled into the lower artesian aquifer to avoid potentially impacting water wells located in the upper level of the perched aquifer.

d. Unavoidable Adverse Impacts

None.

7. Sewerage

a. Existing Conditions

There are no sewage treatment facilities currently located on the proposed site. A six-inch sanitary sewer main is located on a utility easement which traverses the northwest corner of the site and is owned by the City of Kalispell. The City of Kalispell operates a sewage treatment plant which provides secondary treatment with partial tertiary treatment.³⁶ The City sewage treatment plant was designed for a capacity of 2.7 million gallons per day (mgd) and carries average daily flows of 1.3 mgd. The storm runoff inflow and high ground water infiltration to the sewer system causes hydraulic overloads which tax the collection and treatment system. Also, the system's effluent is discharged into Ashley Creek, sometimes at levels exceeding the minimum requirements of the current discharge permit for Kalispell.

These problems and other sewage and storm water problems in the planning area are being addressed in the "201 Facilities Plan" for the Kalispell area. The 201 Facilities Planning Area includes Kalispell and the immediate area located in Flathead County surrounding Kalispell. The project site is included in the 201 Facilities Planning Area also.

b. Probable Impact of the Proposed Action

The proposed project will generate a maximum of an estimated 18,768 gallons of sewage per day, or 6,850,320 gallons annually.* Since a city sewer system main is within easy access to service the site it would seem reasonable to connect the proposed facility to the city's sewer system. However, since the site is not within the city limits and there are problems under study associated with the city sewage disposal system, the developers intend to provide an on-site sewer system. An on-site sewage disposal system permit has been obtained from the Flathead County Sanitation Department. The method of treatment and disposal approved is a conventional septic tank and absorption drainfield. The choice for this type of system and its location on-site were determined by the suitability of the site and projected sewage flow estimates by Stahly Engineering and Associates of Kalispell, Montana. Design capacity of the septic tank system is for 27,925 gpd of sewage flow and includes an 830-gallon dosing chamber.

The sewage disposal system was designed based on the criteria set forth in the "Manual of Septic Tank Practice" as published by the U.S. Public Health Service of the Department of Health, Education, and Welfare; and Guidelines for Modification or Additions to Soil Absorption Fields" as pub-

*This is based on other shopping center water records with an average usage of 0.024 to 0.0475 gallons per square foot of mall area. Sewage flows will be somewhat less than water use.

lished by the technical review committee, Washington State Department of Social and Health Services, Office of Environmental Health Programs.

On-site percolation tests were performed in the area of the proposed drainfield and the percolation rate was found to be 6.7 minutes per inch drop of water. This percolation rate was found to be within the allowable application rate of two gallons per day per square foot of drainfield according to the USPHS manual.³⁷

The septic tank/absorption field will be located on the western portion of the proposed site. (See the following map for location and layout.)

c. Measures to Mitigate Adverse Impacts

The design capacity of the septic tank sewage disposal system is well above estimated sewage flows and will mitigate the potential for overflows from the system. Septic tank failure should be mitigated by the design standards followed and adherence to construction specifications during construction of the system. As a precautionary mitigating measure the system should be monitored frequently once operation commences.

Another mitigating measure against potential failure of the system would be to connect the mall facility into the City of Kalispell sewer system and not construct a system on-site.

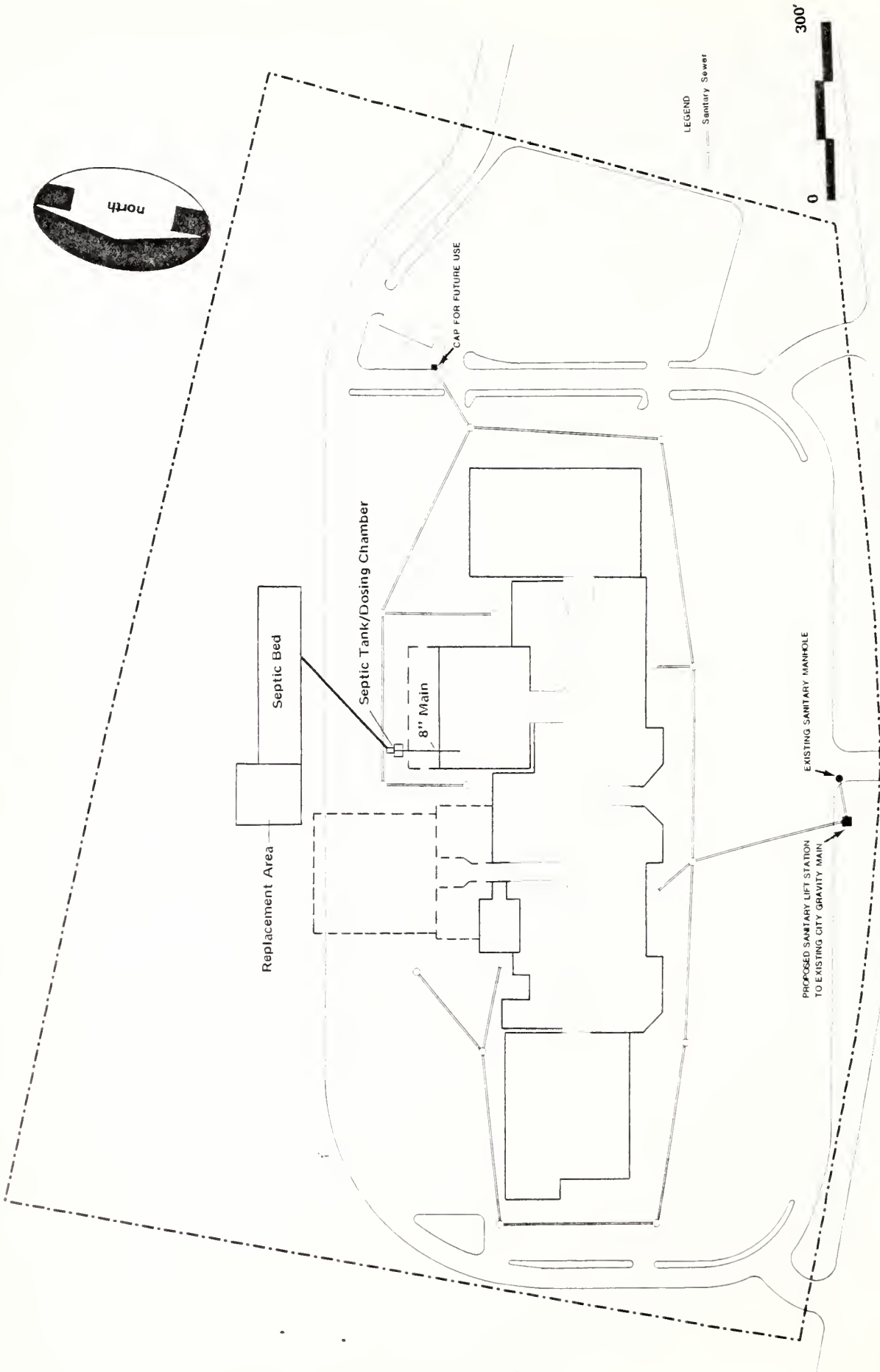
d. Unavoidable Adverse Impacts

There should be no adverse environmental impacts of an unavoidable nature if mitigating measures are enforced during the construction and operation of the on-site system.

8. Solid Waste Disposal

a. Existing Conditions

There is no significant amount of solid waste presently produced on-site. Although some litter has been noticed on the site, it has not accumulated as a result of deliberate dumping of large quantities of refuse. There is a



PROPOSED SEWER SYSTEM

county sanitary landfill located about seven miles northwest of the site just off of U.S. Highway 93. This landfill is operated by the Flathead County Disposal District.

b. Probable Impact of the Proposed Action

The proposed facility will produce a significant amount of solid waste. Refuse from shopping centers typically include cardboard, paper, packing material, plastic, and glass. Some food waste may also be anticipated either from employees' lunches or associated food services. Shopping centers of comparable size generally produce between 60 and 100 cubic yards of solid waste per week. Refuse will be hauled to the county sanitary landfill through services provided by a private contractor. The county sanitary landfill has a remaining life expectancy of 50 years and will be able to accommodate the additional solid waste generated on-site.³⁸

c. Measures to Mitigate Adverse Impacts

The recycling of cardboard waste products could significantly reduce the amount of solid waste requiring disposal.

Another mitigating measure to reduce the total amount of solid waste generated by the mall facility is the potential acquisition of a stationary compactor. A large compactor could compress solid waste at a ratio of up to five to one. The use of a compactor would result in a reduction of solid waste volume, and refuse would be less likely to be windblown or tampered with.

d. Unavoidable Adverse Impacts

The production of solid waste is an adverse impact but the type of waste and the quantities the project would generate will not cause any serious problems.

9. Storm Drainage

a. Existing Conditions

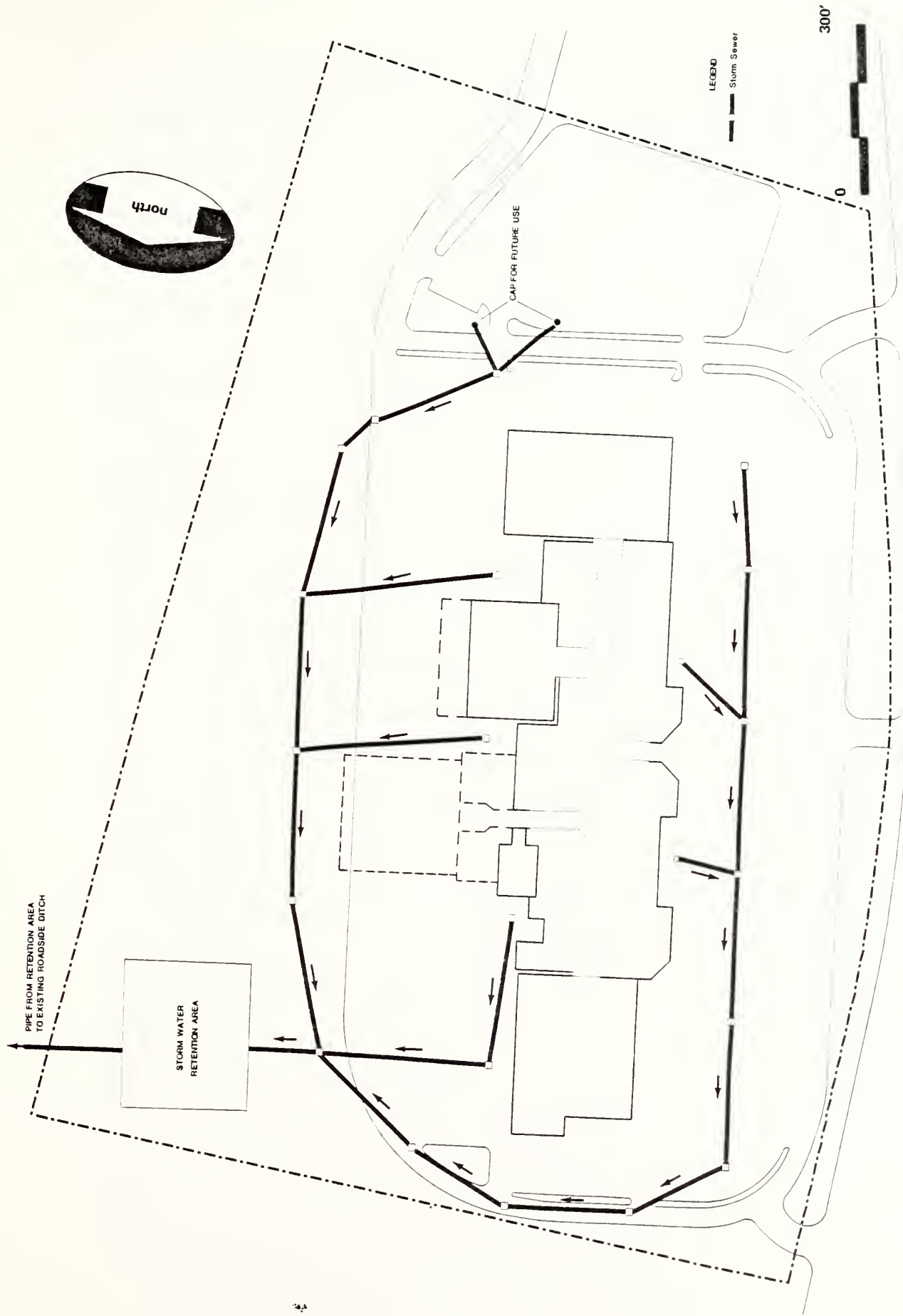
Storm water presently generated on-site is disposed of by natural percolation into the earth with minimum runoff occurring on-site.

The City of Kalispell provides a combined storm water/sewer system for areas within the city limits. However, combining the storm water into the sewer system creates problems during periods of high storm water runoff causing the existing system to be overtaxed. As mentioned in subsection 7, above, there is a 12-inch city sewer main located along the northwestern edge of the site.

b. Probable Impact of the Proposed Action

The on-site storm water runoff from the built-over area will be collected by a series of catch basins and piped to a storm water retention area on the northeast portion of the site. Storm water will be diverted to the retention facility and then recharged into the ground or evaporated. (Please see the map on the following page.) The retention facility has been designed to hold 200,200 cubic feet of water. This is more than the 179,568 cubic feet of water that would collect on-site during a one-hour 50-year storm (i.e., during an hour of a storm of a severity to occur only once in 50 years). Percolation from the retention facility will be rapid.

Plans for the storm water retention facility also show a 10-inch concrete pipe leading from the retention pond to a roadside ditch along Grandview Drive, which ultimately drains into the Stillwater River. This pipe would drain water from the site at the rate of 9,000 cubic feet per hour. Installing this system is not recommended unless a clarification and filtration system is planned also.



PROPOSED STORM WATER DRAINAGE SYSTEM



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The water discharged by the on-site storm water retention facility will evaporate and percolate through the soil and eventually recharge the water table. See subsection 2 of Part A of this section for a discussion of the probable impact of this redirected water.

c. Measures to Mitigate Adverse Impacts

The final engineering characteristics of the storm water system proposed for the mall site should be determined by consultation with the local health and engineering offices.

The release of storm water from the retention facility into the drainage ditch along Grandview Drive is not recommended due to potential pollutants reaching the Stillwater River. However, if this action proves necessary some mitigating measures which should be implemented include the use of baffles to increase detention time, skimmers to remove grease, oil and gas, and flocculation to remove other undesirable compounds that may be present. Also the outlet of the pipe should spill into an area armored with fieldstone to reduce velocity before entering the drainage ditch. It would be necessary to reshape and revegetate the road ditch along with other improvements to use this ditch for drainage.

During the winter snow removed on-site should be piled to melt into the catch basin drains and then into the retention facility on-site. The retention facility should be surrounded by a chain link fence for safety purposes.

d. Unavoidable Adverse Impacts

The proposed project will increase storm water runoff on-site and the storm water will contain elements of impurities not currently associated with the site. However, if the storm water drainage and retention system

is properly constructed and maintained, there should be no unavoidable adverse impacts presented by the increase in storm water runoff associated with the proposed project.

10. Historic and Archaeological Sites

a. Existing Conditions

A cultural resource inventory was conducted on November 27, 1979 by the Cultural Resource Division, Mineral Research Center, Montana Tech Alumni Foundation. Nothing archaeologically or historically significant was encountered during the on-site survey. A literature search and archival review was also conducted which utilized the following information sources:

- (1) National Register of Historic Places, Annual Listing, Federal Register, February 6, 1979;
- (2) Montana Fish and Game Commission, Montana Historic Preservation Plan with Historic Sites Compendium, Recreation and Parks Division, Montana Fish and Game Department, Helena, Montana, 1975; and
- (3) communications with Dee Taylor, Montana Statewide Archaeological Survey Files, University of Montana, Missoula, Montana.

None of the above sources revealed any evidence that the project site is of historic or archaeological significance.³⁹

b. Probable Impact of the Proposed Action

The proposed shopping center should not create a significant loss of surface cultural resources. However, care should be taken during all earth removal and excavation since there is still a remote possibility prehistoric or historic cultural material may be exposed during construction activities.

c. Measures to Mitigate Adverse Impacts

In the event a prehistoric or cultural item is discovered, the Archaeology and Cultural Resource Division of the Mineral Research Center in Butte, Montana should be contacted immediately.

d. Unavoidable Adverse Impacts

None.

11. Man-Made Hazards

a. Existing Conditions

There are no apparent man-made hazards on the site at present.

b. Probable Impact of the Proposed Action

The proposed project will involve some increased potential for health hazards (accidents) during the construction phase. However, these are typical of construction activities of this type and will be controlled by adherence to applicable safety codes.

c. Measures to Mitigate Adverse Impacts

Any hazard potential created by the proposed project may be mitigated by adherence to applicable health, building, fire, and safety codes.

d. Unavoidable Adverse Impacts

None.

12. Land Use

a. Existing Conditions

The proposed project site is located in the Buffalo Hill area immediately north of the City of Kalispell. The Buffalo Hill area is identified as the square formed by the four sections of land to the northwest of the city. The proposed site is generally located in the southeast quadrant of the square.

Land use in the site area is best described as being in transition from a natural resources base--primarily agricultural with some gravel extraction--to a built-up residential, institutional, and commercial base. Existing land use in the area is shown on the map on the following page.

A land use survey conducted in the summer of 1979 by the staff of the Areawide Planning Organization (APO) indicated the following breakdown:

<u>Activity</u>	<u>Unincorporated County</u>	<u>City</u>	<u>Total</u>
Commercial Structures	2	3	5
Offices	1	27	28
Single Family Dwellings	99	288	387
Multi-family Units	2	80	82
Mobile Home Units	22	12	34
Public Institutions	--	2	2

The non-residential uses consist primarily of seven professional office buildings, a florist shop, a tire retailing establishment, a soft drink warehouse, a mortuary, and a drive-in theater. Institutional uses include a major regional hospital, a nursing home, a junior high school, and several churches.

Other land use features in the area include U.S. Highway 93, the most heavily traveled route between Kalispell and Whitefish (and subsequently the Canadian border); Meridian Road, which intersects with Highway 93 near the site; a city-owned 27-hole public golf course; and the Stillwater River, which meanders through the area on a course roughly from northwest to southeast.

Land use planning for Kalispell and its environs has, in the past, been the responsibility of a joint effort by the Board of County Commissioners and the Kalispell City Council. The two elective bodies acted on the recommendations of the Kalispell City-County Planning Board and the Areawide Planning Organization (APO). Beginning in 1980 the APO was reorganized into an organization called the Advisory Technical Staff (ATS).

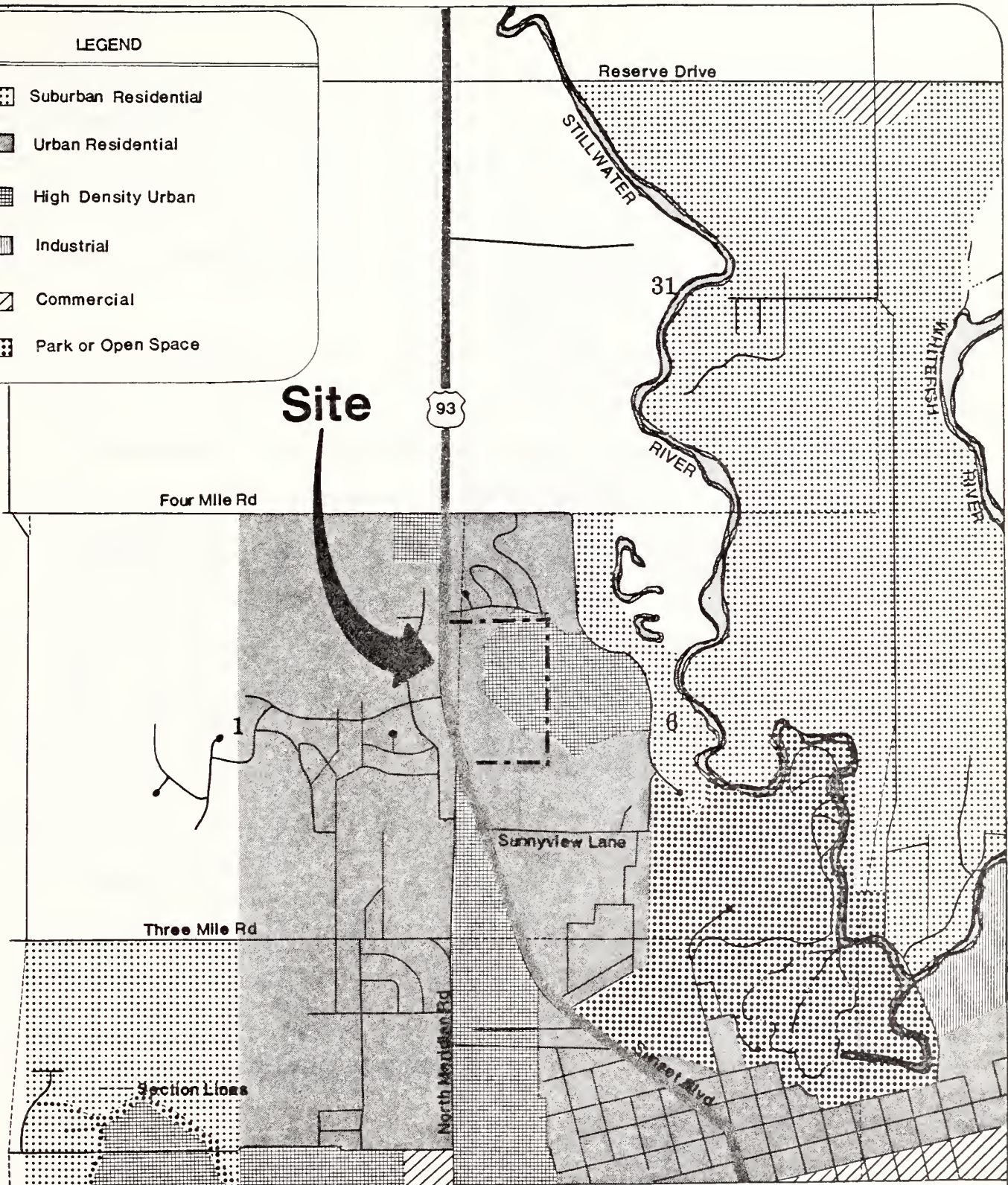
The county and city adopted a comprehensive development plan for the Kalispell planning area, in which the site is located, in 1974. That plan specifically called for the Buffalo Hill area to be of mixed residential uses with varying densities ranging from suburban to urban to high density. That plan indicated that the area had an ultimate capacity if committed generally to residential uses of some 3,384 dwelling units with a potential population of 10,045 persons. Section 6, where the proposed site is located, had a projected density of 1,768 dwelling units with a population capability of 5,170 persons.⁴⁰

An amendment to the plan was recommended by the Planning Board in September of 1979 which altered the allocation of uses in the Buffalo Hill area. The mixed-density residential concept was reaffirmed and refined. Under the revised plan the general area would ultimately accommodate 5,093 dwelling units with a population capability of 14,878.⁴¹ The map on the following page shows the uses of the area as set forth in the amended plan.

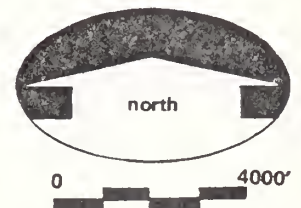
Specifically in Section 6, the revised plan called for 278 acres to be allocated to mixed suburban, urban, and high density uses; 199 acres to be allocated for public purposes; 32 acres for parks; and three acres for commercial use. The proposed 52-acre shopping center site was considered for commercial designation but the board chose instead to recommend that it be

LEGEND

-  Suburban Residential
-  Urban Residential
-  High Density Urban
-  Industrial
-  Commercial
-  Park or Open Space



COMPREHENSIVE PLAN



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of mixed urban and high-density residential use. The recommended designation for the site would have a density range of from 2.1 to 40 units per acre or an average density of approximately nine units per acre. Based on the fact that only about 39 acres could actually be developed (the other acreage being allocated for roads, open space, etc.), the proposed site could accommodate approximately 350 dwelling units.

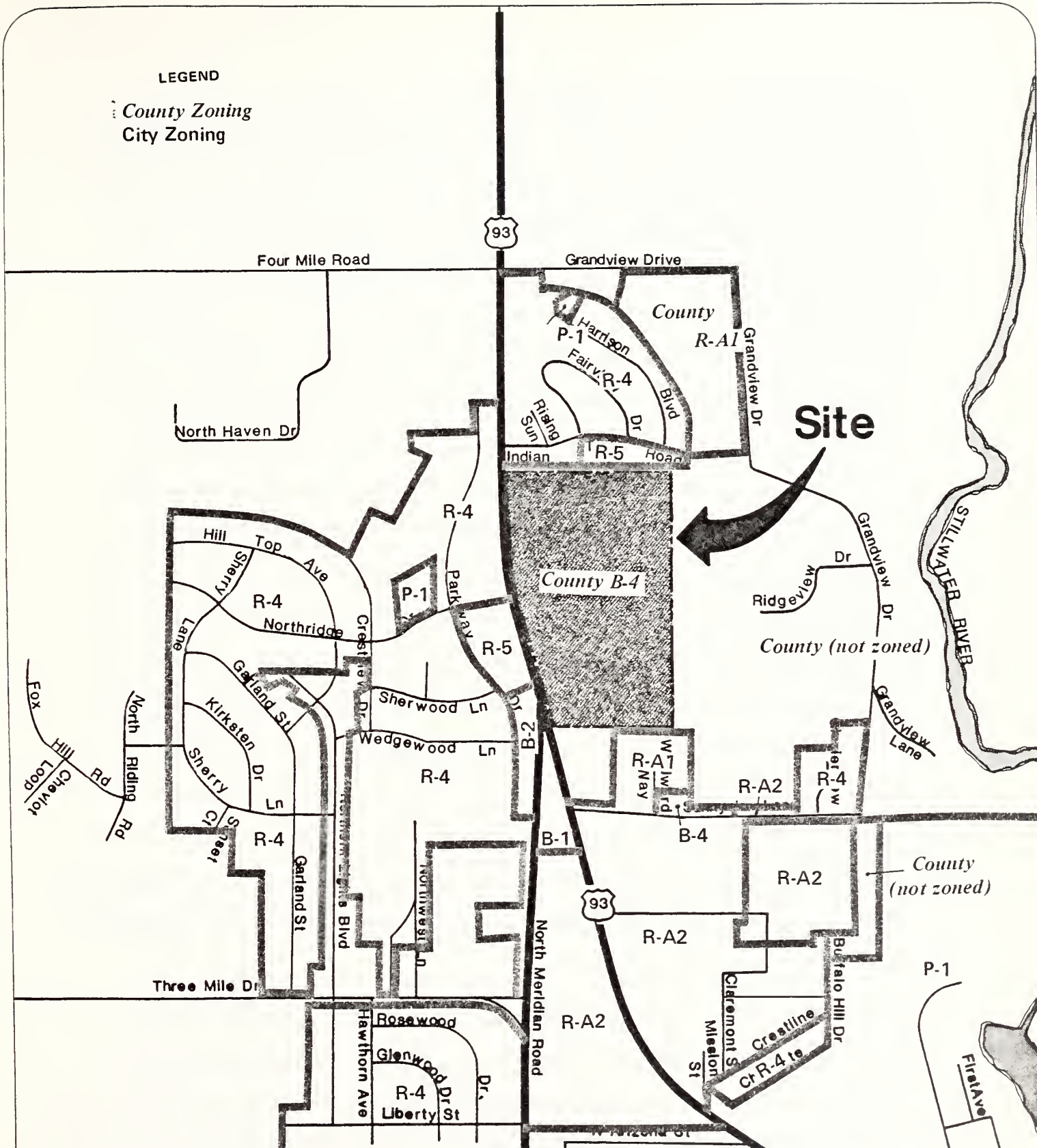
The APO and Planning Board recommendation was accepted in principle by the Kalispell City Council but has never been acted upon by the Flathead County Board of Commissioners. In December of 1979, the Commissioners approved a zoning classification of B-4 for the site, which would allow the shopping center. (See the map on the following page. See Appendix B for an explanation of zone classifications.) The findings of fact issued by the Commissioners listed land use, economics and employment considerations, among others, as reasons for granting the zoning designation. (See Appendix C for a listing of the findings.) The action by the commissioners is currently the subject of an appeal to the courts brought by several area residents.

Actual current residential zoning in the Buffalo Hill area would allow for approximately 2,400 dwelling units over and above the some 392 units which currently are being proposed, according to APO staff estimates. These figures, obviously, do not reflect the Comprehensive Plan's development potential for numbers of dwelling units because much of the Buffalo Hill area, particularly the unincorporated portion, is presently unclassified and not zoned for any specific use.

Because the Comprehensive Plan is not a specific land use control, but rather functions as a general guide to development, there does not appear to be any requirement, other than what is required on the basis of good planning principles, that a change in the land use plan designation be made.

LEGEND

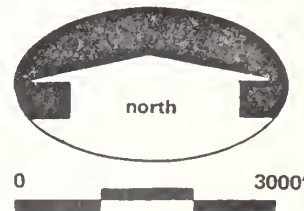
County Zoning
City Zoning



ZONING MAP



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b. Probable Impact of the Proposed Action

The proposed shopping center is at variance with the adopted Comprehensive Development Plan of 1974 and the recommendations made by the Planning Board in September of 1979. The most recent statement of public policy issued by the elective body with jurisdiction over the site--the Board of County Commissioners--is reflected in the approval of commercial zoning for the site. In this sense the zoning of the property is in conflict with the planning guideline. The apparent conflict in the planning process presently is the subject of a court action.

The project itself will have a number of impacts on land use in the area. The APO has estimated that the Buffalo Hill area has an ultimate population potential of from 10,000 to 15,000 persons. The area has been subject to steady residential growth in recent years. If such growth continues, it will by its own forces create demands for various types of commercial activities including those for convenience goods (groceries, drugs, hardware, etc.) and comparison goods (general merchandise, clothing, furniture, appliances, etc.). The proposed shopping center will meet these area demands as well as serving similar shopping demand from the regional trade area. The fact that a number of different retail outlets will be concentrated in one center could be considered a positive impact, mitigating the potential for haphazard strip development.

Generally, a regional shopping center of the size proposed can be expected to have some growth-inducing impacts on surrounding property. However, in the case of the proposed project, these impacts will be somewhat constrained. U.S. Highway 93, which traverses the western boundary of the site, will serve as a buffer for the present uses to the west, which are primarily

residential. Residential uses directly border the site along most of the northern border of the project site. All of these units, which consist primarily of duplexes and four-plexes, actually have their back yards facing the site. The site plan calls for an interior service road and parking areas which also will serve as a buffer between the northern boundary and the mall structures.

Property to the east is primarily residential, though of somewhat lower density than to the west and north. A natural topographic buffer separates the project site from property to the east--the site is somewhat higher than the ground to the east, which slopes down to the Stillwater River. A strip of property along the southern border of the site, some of which has been zoned by the city as B-4, RA-1, and RA-2, serves as a buffer to the hospital and medical office uses to the south. In addition, immediately south of the site are located a large indoor recreation center and a two-story apartment complex.

The property to the west, north, and south of the site is within the Kalispell city limits. The property to the east is unincorporated.

Constraints on growth of the center beyond its present proposed boundaries occur on the west in the form of U.S. Highway 93 and the residential development, to the north in the form of the existing residential subdivision, and to the east in the form of the topographic barrier. There is a potential for induced growth immediately to the south of the site. Property immediately southeast of the site has been zoned by the city as both commercial (presumably for office uses) and high-density residential. Residential and office uses will occur in this area regardless of whether the center goes ahead or not. The property immediately south of the site between the recrea-

tion center and U. S. Highway 93 is not a part of the proposed project and has a potential for future commercial use either as offices or for retail space.

The ultimate pattern of land development in the vicinity of the proposed project can only be subject to speculative comment given the lack of any specific land use controls and clear policy and direction from the jurisdictions with planning responsibility. The undeveloped land from the intersection of Grandview Drive and U. S. Highway 93 north to where the river crosses Highway 93 will be subject to urbanized land use demands as the area grows. The development of the proposed shopping center is expected to accelerate such demands. Whether the land use changes take the form of residential development, as suggested in the Comprehensive Plan, or the form of strip commercial development along Highway 93 will depend upon the policies and land use controls implemented by the jurisdictions. Again, sound planning and principles would indicate that the concentration of commercial development into well-planned centers is a better use of the land than for haphazard strip development.

c. Measures to Mitigate Adverse Impacts

Future land use patterns in the Buffalo Hill area will to a great extent be governed by the planning policies and controls of the county and city, which have planning jurisdiction in the area. Early and effective coordination between the two agencies will be necessary if the potential growth of the Buffalo Hill area, as potentially accelerated by the proposed shopping center, is to be effectively directed and controlled.

d. Unavoidable Adverse Impacts

The development of the proposed project could set in motion a series of events leading to some presently unknown land use changes in the project

area. Measures should be initiated by the jurisdictions with responsibility to anticipate and deal with such changes. This need for planning activities, although unavoidable should not be construed as adverse. The absence of such planning, however, would have consequences both unavoidable and adverse.

C. Social Environment

1. Cultural Uniqueness and Diversity

a. Existing Conditions

The general cultural environment in the area of the proposed project site is not unique with respect to other communities in Flathead County and western Montana. The residential neighborhoods to the north and west of the site would be characterized as typical family-oriented urban/suburban subdivisions. The medical and religious institutions south of the site also are typical of other similar institutions in western Montana.

b. Probable Impact of the Proposed Action

Construction of the new shopping center will add a new cultural element to the Buffalo Hill area in the sense of providing a gathering place and destination point for people from throughout the region. If retail shops, eating places or other commercial activity not currently found in the Kalispell area are included in the center, it could be suggested that such facilities would add to the cultural diversity of the area. At the present stage of development, however, the type and numbers of such facilities (if any) are unknown.

c. Measures to Mitigate Adverse Impacts

None.

d. Unavoidable Adverse Impacts

None.

2. Social Structure

a. Existing Conditions

The existing social structure in the Buffalo Hill area surrounding the project site would be typical of that found generally in Flathead County and western Montana. Family life would be expected to be strongly influenced

by the area's historic dependence upon natural resources--agriculture, forestry, and outdoor recreation. The community is predominantly white with the minority population representing only slightly more than one percent. The most recent figures available (1970 census) indicated that the racial makeup of the population was 38,966 white and 404 other racial.

b. Probable Impact of the Proposed Action

The proposed project will add a new and major commercial element to the existing neighborhood. The center will not have a direct impact on the social structure as such but it may change the way in which the general neighborhood is perceived by some persons.

c. Measures to Mitigate Adverse Impacts

None.

d. Unavoidable Adverse Impacts

To the extent that some may perceive a shopping center to be a negative influence on a neighborhood, this factor would be considered as unavoidable and adverse. Others, however, would consider such a center to be a convenience and a significant social and economic improvement for the area.

3. Population

a. Existing Conditions

The population of Flathead County has shown a somewhat sporadic growth in the period since 1940. During that time the total population has more than doubled from 24,271 persons in 1940 to an estimated more than 55,000 for 1980. The 1980 figure is based on projections made by the Areawide Planning Organization (APO) using estimated growth rates for the period of 1974 through 1976. Historic population trends in the county have been influenced by large construction projects such as the Hungry Horse Dam (1950s)

and a general in-migration rate which is among the highest for all Montana counties.

Recent population increases for the City of Kalispell have not followed precisely the same growth trends as the county but the city is expected to virtually double its population in the period from 1960 to 1990. The three-county Kalispell trade area, as identified in a market feasibility report prepared for Developers Diversified by Bordner Consultants of Spokane, Washington, also shows similar population increases projected to the year 1990.⁴² (Please see the following table.)

The immediate population in the Buffalo Hill area was estimated in the summer of 1979 to be approximately 1,700. This estimate was made by the Areawide Planning Organization (AP) staff based on a land use survey of the area. The figure was derived by using a 3.37 person per unit occupancy rate for the 380 residential units in the city and 3.42 persons per unit for the 123 units in the unincorporated area.

Recent development proposals in the Buffalo Hill area indicate the potential for 392 new dwelling units or a potential population of approximately 1,300 additional persons, based on the city occupancy rate figure used by the APO. According to the APO, current zoning in the Buffalo Hill area would allow for approximately 2,400 dwelling units or a population potential of approximately 8,000 persons. The Comprehensive Development Plan for the Kalispell Planning Area indicates a potential population capability for Buffalo Hill of from 10,000 to 15,000.

The general direction of growth in the City of Kalispell and its environs, based on the potential identified above, indicates that the northwest quadrant in and beyond the city limits in which the Buffalo Hill area is located will continue to see steady residential growth in the future.

POPULATION

Flathead County

<u>Year</u>	<u>Population</u>	<u>% Change (rounded)</u>
1940	24,271	
1950	31,495	29 %
1960	32,965	4 %
1970 ¹	39,460	20 %
1974 ²	44,487	13 %
1976 ²	48,127	8 %
1977 ³	49,941	4 %
1980 ³	55,395	11 %
1970-1980	---	40 %

Notes:

- ¹ Estimates by APO staff based on 1970 Census.
- ² Estimates by APO staff based on septic tank permits and electrical hook-ups.
- ³ Estimates by APO staff based on 1974-1976 growth rates.

Sources:

1. U.S. Census.
2. From Flathead County Overall Economic Development Plan, May 1979.

City of Kalispell

<u>Year</u>	<u>Population</u>
1960	10,151
1970	10,526
1978	15,677
1985	17,000
1990	21,000

Source: U.S. Bureau of the Census; Flathead County Areawide Planning Organization; Editor and Publisher Market Guide; Land Research & Planning.

Kalispell Trade Area

<u>County</u>	<u>1960</u>	<u>1970</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>
Flathead	32,965	29,460	55,300	64,485	73,575
Lake (pt.)	6,270	6,034	7,524	7,733	7,900
Lincoln	<u>12,537</u>	<u>18,063</u>	<u>17,900</u>	<u>18,100</u>	<u>18,300</u>
TOTAL	51,772	63,557	80,724	90,318	99,775

Source: U.S. Bureau of the Census; Montana Department of Community Affairs, Research Division; Flathead County Planning Department; and Bordner Consultants.

b. Probable Impact of the Proposed Action

There will be both direct and indirect potential for impacts on population as a result of the proposed project. Direct impacts will include new population levels and distribution derived from new employment in the proposed shopping center. Based on typical shopping center practices and on estimates provided by the developer, an estimated maximum of 700 jobs will be created by the project at the end of development of Phases I and II. Not all of these jobs will be new because some of the retail establishments in the facility will actually be relocated from other locations in the Kalispell area. The extent of such relocations at present, however, is unknown.

It should be assumed that most of the new jobs created will come from the existing labor force in the area. This assumption is based on the fact that the nature of retail sales employment does not require technically or highly trained personnel and will tap the "second family job" market. If it is assumed that 90 percent of the center's employees will come from the local labor pool, then the potential new population impact would be approximately 70 employees moving into the general area. Given an average of 3.37 persons per family (as used by the APO) the project could have a potential impact of an estimated 236 persons. It should also be noted that these people will in all likelihood be distributed randomly over the Kalispell region. There may be some later movement of such employees moving into the area near the project site in order to be closer to their places of employment but such movement is inestimable at this time and subject to many variables beyond this study. The impact of an estimated 236 new persons in the Kalispell area will not be adverse in and of itself.

The indirect impacts will be produced by the growth-inducing character of a project of this nature. The proposed center will have a profound in-

fluence on the pattern of future land use in the Buffalo Hill area. In this sense, the project is perceived as a magnet which will attract other economic and residential activities. Because of land use and transportation economics, one might expect that not only will new businesses locate in proximity to the project site, but also that the employees of the primary, secondary, and tertiary economic activities will also have a tendency over time to locate in the general area. Therefore, current growth rates in the northwest sector of Kalispell and its unincorporated environs will be expected to accelerate. Based on the current relatively low-density levels in this area, such growth is not expected to constitute an adverse impact in terms of population density. Both the area Comprehensive Plan and current city zoning trends in the area have recognized the potential for future population growth. The absence of effective land use planning and controls in this area, however, could lead to an adverse impact of a long-range nature. This is simply to say that growth impacts in the northwest sector will not in themselves be adverse, but that lack of attention to proper planning (including transportation, schools, parks, and land use) could lead to haphazard growth which could be a significant future adverse impact.

c. Measures to Mitigate Adverse Impacts

Indirect adverse impacts related to the land use influences of the proposed project can be mitigated by early and close coordination between the city and county governments and the development by these entities of effective plans, policies and programs to deal with the anticipated change in the immediate project area.

d. Unavoidable Adverse Impacts

If the mitigating measures mentioned above are implemented, the proposed project should not produce any unavoidable adverse impacts upon population in the Kalispell area.

4. Housing

a. Existing Conditions

The most recent housing information and analysis done for the Kalispell Planning Area occurred in conjunction with the publication of the Comprehensive Development Plan in 1974 and a general updating of the plan in 1979. Much of the housing data in the plan is somewhat dated, having been compiled primarily from 1974 records. The housing characteristics for the City of Kalispell are contained in the table on the following page. Basically, this information gives a general indication of housing mix and vacancy rates.

Housing demand for the Kalispell Planning Area, as projected by the Areawide Planning Organization, is contained in the table on page 102. This table indicates a demand of nearly 50 percent or 2,949 total units in new housing during the period of 1974-1990 in the planning area.

The APO staff conducted a housing inventory of the Buffalo Hill area in 1979 in conjunction with its review of the proposed project. The survey indicated the following breakdown of housing supply:

	<u>City Portions</u>	<u>Unincorporated</u>	<u>Total</u>
Single Family Units	288	99	387
Multi-family Units	80	2	82
Mobile Home Units	12	22	34

The staff also estimated that the Buffalo Hill area has a potential, based on current land already zoned, of approximately 2,400 dwelling units. Plans under consideration would provide for approximately 392 new dwelling units in the area if all were constructed. Total housing capability for all land in the area is estimated at from 3,384 to 5,093 units.

The site itself has been approved as a "B-4, Commercial" zone by the county. If it were to be used for residential development and zoned according to the guidelines established for the area in the Comprehensive Plan, the site would

CITY OF KALISPELL
HOUSING CHARACTERISTICS, 1974

	<u>Kalispell</u>
<u>Single Family Units</u>	
Occupied	
Owner	2,350
Renter	<u>669</u>
Subtotal	3,019
Vacant Single Family Units	<u>211</u>
Total Single Family Units	<u><u>3,230</u></u>
<u>Apartment or Multi-Family Units</u>	
Occupied	556
Vacant	<u>32</u>
Total Multi-family Units	<u><u>588</u></u>
<u>Mobile Homes</u>	
Parks	
Occupied lots	77
Vacant lots	<u>6</u>
Total Spaces Available in Parks	83
Personal Property not on Park Lot	<u>9</u>
Total Mobile Homes	<u><u>86</u></u>
Single Family Unit Vacancy Rate	6.53%
Apartment Vacancy Rate	5.44%
Mobile Home Park Lot Vacancy Rate	7.23%

Source: Flathead County Comprehensive Plan.

HOUSING DEMAND
KALISPELL PLANNING AREA
Growth Factor

<u>Estimated Population</u>	<u>1974</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>
City Area	10,559	11,690	12,649	13,599
Suburban Area	8,719	10,828	12,569	14,319
Planning Area	19,278	22,518	25,218	29,918

<u>Incremental Increases</u>	<u>1974-80</u>	<u>1980-85</u>	<u>1985-90</u>	<u>Total</u>
In Population				
City Area	1,131	959	950	3,040
Suburban Area	2,109	1,741	1,750	5,600
Planning Area	3,240	2,700	2,700	8,640
In Dwelling Units				
City Area	404	342	339	1,085
Suburban Area	659	580	625	1,864
Planning Area	1,063	922	964	2,949

<u>Dwelling Unit Demand by Tenure</u>	<u>1974</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>1974-90 Total New Construction</u>	<u>Total 1990 Housing Stock</u>
City Area						
Single Family	3,230	81	68	68	217	3,447
Multi-family	583	283	239	237	759	1,342
Mobile Home	92	40	35	34	109	201
Total	3,905	404	342	339	1,085	4,990
Suburban Area						
Single Family	1,913	356	313	337	1,006	2,919
Multi-family	15	237	209	225	671	686
Mobile Home	812	66	58	63	187	999
Total	2,740	695	580	625	1,864	4,604
Planning Area						
Single Family	5,143	437	381	405	1,223	6,366
Multi-family	598	520	448	462	1,430	2,028
Mobile Home	904	106	93	97	296	1,200
Total	6,645	1,063	922	964	2,949	9,594

Source: Flathead County Comprehensive Plan.

have a potential for approximately 350 dwelling units. This calculation is based on taking the total 52 acres, subtracting 25 percent for roads and services, thus leaving 39 acres for development, and then applying a density rate of 8.9 units per acre. The density rate is determined by arriving at a combination mixed single and multi-family use based on the designated land use characteristics specifically contained for the site in the Comprehensive Plan and potential residential zoning.

b. Probable Impact of the Proposed Action

The proposed shopping center might create a direct demand for approximately 70 housing units based upon the new population estimates for Phases I and II, discussed earlier. Even assuming a worst-case situation in which these families locate in the immediate area, as opposed to being dispersed over the region, the impact will not adversely affect the existing housing demand or potential.

The indirect housing impact, on a cumulative basis, may be more significant. Some of the land currently designated as future residential area may be re-analyzed in terms of demands for other uses, such as commercial or office space. However, it does appear that the Buffalo Hill area has more than enough potential housing land to meet demand, based on the APO projections in the previous table. The potential of 2,400 dwelling units on existing zoned land (not including the non-zoned land in the northern portions of the area) represents more than 80 percent of the projected housing demand for the 1974-1990 period for the entire Kalispell planning area.

c. Measures to Mitigate Adverse Impacts

Indirect impacts related to the growth-inducing nature of the project may be mitigated, as with population, by early and close coordination between the city and county governments. The normal functioning of the housing market and the planned housing projects in this area may also be considered as

mitigating measures, although not a function of the proposed project. Current stress on new housing financing, particularly as it relates to single family dwellings, may influence a change in direction toward more multi-family units. The analysis necessary to make a definitive determination in this regard, however, is beyond the scope of this study.

d. Unavoidable Adverse Impacts

The growth-inducing nature of the proposed project may cause some existing potential residential land in the immediate area to be considered for other uses.

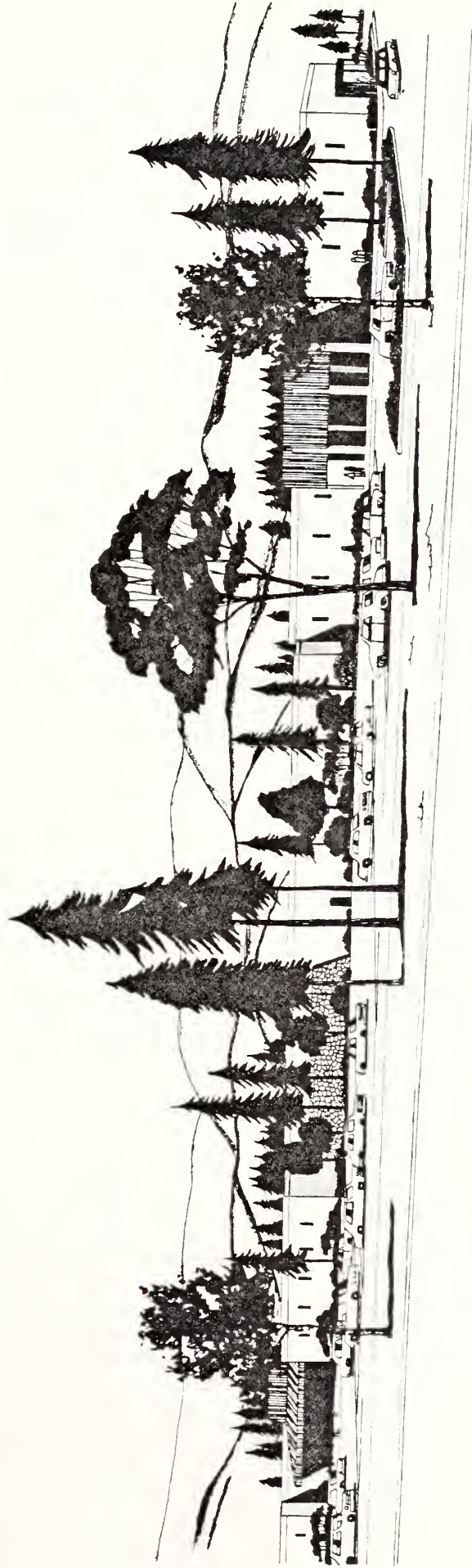
5. Aesthetics

a. Existing Conditions

The proposed shopping center site is 52 acres in size, rectangular shaped and currently undeveloped. It has been used in the past primarily for agricultural purposes. The site, which presently has gently undulating topography, represents a pleasant, pastoral setting and is relatively unremarkable with respect to other similar open fields in the general area. The most pleasing aspect of the site is the view from the site of the Flathead Valley and surrounding mountains.

b. Probable Impact of the Proposed Action

The proposed project will convert what is now a large open field into a built-up environment housing parking areas, retail shopping structures and ancillary facilities. The design for the project will be essentially one-story in height and of a contemporary styling. The exterior will be of a consistent design throughout with most retail outlets fronting on an interior enclosed mall. The proposed plans call for landscaping around the perimeter of the facility. Trees, shrubs and plantings will act as a buffer for parking areas. (See the architectural rendering on the following page.)



ARCHITECT'S RENDERING

Because of the subjective nature of aesthetic factors, no attempt is made here to judge the positive or negative aspects of the proposed project.

c. Measures to Mitigate Adverse Impacts

Potential adverse aesthetic impacts may be mitigated to some degree by the application of sound architectural design, landscape planning, and construction practices.

d. Unavoidable Adverse Impacts

Because of the subjective nature of aesthetics, some individuals will find the aesthetic quality of the proposed project to be unavoidable adverse. Others will find it to be pleasing and acceptable.

6. Economy and Employment

a. Existing Conditions

The economic base in Flathead County is strongly influenced by agriculture, the wood products industry and tourism. Other economic activities of importance in the region are the manufacture of aluminum, governmental service operations and wholesale and retail activities. The tables on the next pages are from the 1979 Overall Economic Development Plan (OEDP) for Flathead County.⁴³ The first table indicates income generated in the county from various sources, and the second shows employment levels from various sources. These tables point out the fact that in Flathead County retail and wholesale trade is next in importance to manufacturing in terms of percentage of both income and employment.

The major retailing center in the county is the City of Kalispell. Kalispell actually functions as a service center for a trade area that extends beyond the county limits. The total trade area includes all of Flathead County, Lincoln County to the northwest, and portions of Lake County

INCOME BY MAJOR SOURCES
(in \$000s)

	<u>1971</u>	<u>%</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>%</u>
Total Income	\$101,836	100.0 ¹	\$115,732	\$138,374	\$148,451	\$156,768	\$180,556	100.0 ¹
Farm	3,809	3.7	5,618	7,669	7,813	4,752	6,381	3.5
Manufacturing								
Non-Durable Goods	1,952	1.9	2,124	2,322	1,512	1,688	2,080	1.2
Durable Goods	29,095	28.6	31,888	37,816	41,127	43,694	52,199	28.9
Mining	259	.25	150	223	255	153	141	.1
Government								
Federal Civilian	6,129	6.0	6,408	7,734	8,634	10,365	8,649	4.8
Federal Military	1,393	1.4	1,619	1,887	1,466	1,299	1,412	.8
Transportation, Communica- tions & Public Utilities	11,893	11.7	13,201	14,393	16,330	17,747	20,410	11.3
Ag. Serv., Forestry, Fisheries and Other	299	.3	472	749	541	289	403	.2
Construction	4,905	4.8	5,992	8,656	8,774	7,939	10,359	5.7
Finance, Insurance and Real Estate	3,479	3.4	4,133	4,413	4,800	5,032	5,643	3.1
Services	10,912	10.7	12,991	16,023	16,691	19,065	21,997	12.2
State & Local Govt.	10,812	10.6	12,404	14,001	15,706	18,699	20,770	11.5
Trade								
Wholesale	2,716	2.7	2,992	4,070	4,718	5,487	6,515	3.6
Retail	14,183	13.9	15,740	18,418	20,084	20,559	23,597	13.1

Note:

¹Percentages will not necessarily total 100.0 percent due to rounding.

Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce; 1979 Flathead County OEDP Study.

EMPLOYMENT BY MAJOR SOURCES
(Full and Part-time)

	<u>1971</u>	<u>%</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>%</u>
Total Employed	15,574	100.0	16,416	17,450	17,864	17,791	18,789	100.0
Farm Proprietors	894	5.7	875	860	841	827	811	4.3
Non-Farm Proprietors	1,763	11.3	1,844	1,848	1,972	2,028	2,042	10.9
<u>Wage & Salary Employment</u>								
Farm	185	1.2	177	168	176	149	126	.7
Manufacturing								
Non-Durable Goods	300	1.9	318	329	206	232	277	1.5
Durable Goods	3,098	19.9	3,202	3,417	3,351	3,206	3,443	18.3
Mining	24	.2	12	21	17	15	18	.1
Government								
Federal Civilian	592	3.8	572	614	644	686	679	3.6
Federal Military	472	3.0	475	488	448	417	407	2.2
Transportation, Communica- tions & Public Utilities	1,098	7.05	1,127	1,136	1,213	1,212	1,240	6.6
Ag. Serv., Forestry, Fisheries and Other	35	.2	40	48	53	26	37	.2
Construction	464	3.0	547	727	674	569	700	3.7
Finance, Insurance and Real Estate	430	2.8	502	519	558	497	521	2.8
Services	1,638	10.5	1,867	2,097	2,165	2,329	2,587	13.8
State & Local Govt.	1,836	11.8	1,986	2,101	2,221	2,357	2,400	12.8
Trade								
Wholesale	374	2.4	387	456	462	536	579	3.1
Retail	2,371	15.2	2,485	2,621	2,863	2,705	2,922	15.6

Note:

¹Percentages will not necessarily total 100.0 percent due to rounding.

Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce; 1979 Flathead County OEDP Study.

to the south. (See the section on population for trade area population estimates and projected growth rates.) Within the City of Kalispell, the two largest retail trade centers are the downtown core area with approximately 367,000 square feet of retail space, and the Gateway West Mall, located approximately one mile northwest of the CBD, with approximately 132,000 square feet. Other retailing centers include the K-Mart Department Store and Sears Catalogue Store, located in the vicinity of U.S. Highway 2 and Lasalle Road, approximately two miles northeast of the CBD. (See pages 2 and 121.)

According to the U.S. Census of Retail Trade⁴⁴, the most recent accurate retail sales figures available for Flathead County are for 1977. These figures indicate total retail sales in the county of \$196,332,000. This is virutally double the amount of retail sales in 1972 and \$98,569,000. In terms of analysis of shopping center sales activity the most important categories within the total retail sales figure are "GAF" sales representing sales of general merchandise, apparel, and furniture (including home furnishings and appliances). The GAF sales for Flathead County for the years 1972 and 1977 are contained in the following table.

GAF SALES FLATHEAD COUNTY (in \$000s)		
	<u>1972</u>	<u>1977</u>
General Merchandise	7,732	12,874
Apparel	3,442	10,840
Furniture, Home Furnishings, Appliances	<u>4,721</u>	<u>8,576</u>
TOTAL GAF	15,895	32,290

Source: U.S. Census of Retail Trade: 1972, 1977; Feasibility Study, Kalispell Mall Shopping Center, 1978 as updated in January, 1980, by George E. Bordner, economic consultants, Spokane, Washington.

The following table shows per capita sales occurring in Flathead County during the years 1972 and 1977 based on the retail sales figures above and population estimates for the county of 43,000 in 1972 and 48,000 in 1977.

RETAIL SALES PER CAPITA
FLATHEAD COUNTY

	<u>1972</u>	<u>1977</u>	<u>Compound Annual Growth Rate</u>
Total Retail Sales	2,292	4,090	12.3 %
General Merchandise	180	268	8.3 %
Apparel	80	226	23.1 %
Furniture, Home Furn., Appliances	110	179	10.2 %
TOTAL GAF SALES	370	673	12.7 %

Source: U.S. Census of Retail Trade: 1972, 1977; Bordner Consultants.

Note that Flathead County total sales and per capita sales figures are not directly comparable to state averages, since they are inflated by the extent of the Flathead County trade area, tourist sales and Canadian sales. The slightly higher compound growth rate of both total sales and total GAF sales is a reflection of the slightly higher population increase in the area as opposed to the state as a whole. The growth rate of general merchandise store sales of 8.3 percent is far below both the 12-plus percent rate of total sales and GAF sales within the county. It is also substantially lower than the 9.5 percent growth rate of general merchandise sales in the state. This is a direct reflection of the need for increased general merchandise store space in the Kalispell area. It should be noted that the relatively high increase of 23 percent in apparel store per capita sales is an indication of increased sales occurring in apparel stores as a result of inadequate department store space.

The following table compares total potential GAF sales within the Kalispell trading area with actual sales occurring for the year 1977. Potential sales are derived by applying the state per capita average in each category to the total population of the trade area in that year.

GAF SALES ANALYSIS - 1977
KALISPELL TRADE AREA
(In \$000s)

	<u>Potential Retail Sales</u>	<u>Existing Retail Sales</u>	<u>Uncaptured Potential</u>
General Merchandise	\$ 22,896	\$ 15,621	\$ 7,275
Apparel	12,744	13,985	(1,241)
Furniture, Home Furn. Appliances	11,376	10,528	848
TOTAL GAF SALES	47,016	40,134	6,882

Source: Bordner Consultants

Note that a total of \$6.8 million of potential sales are not occurring within Flathead County or elsewhere in the trade area. This is an indication of a leakage of sales dollars to surrounding trade centers. It should be born in mind that the existing sales figures from the 1977 census include sales to Canadians and other tourists traveling through the area and that the actual number of resident dollars being spent outside of the trade area may be understated.

The feasibility of new store space is a function of both existing and projected need. The following table shows increased potential GAF sales within the trading area based on projected population growth to the years 1980 and 1985.

POTENTIAL RETAIL SALES GROWTH
1977 - 1985
(in constant 1977 \$000s)

	<u>1977 State Per Capita</u>	<u>1977-1980</u>	<u>1977-1985</u>
Projected Population Increase		8,724	18,318
General Merchandise	318	\$ 2,774	\$ 5,825
Apparel	177	1,544	3,242
Furniture, Home Furnishings, Appliances	158	1,378	2,894
TOTAL GAF Sales	653	5,696	11,961

Source: Bordner Consultants

As indicated by the above table, by 1980 there will be approximately \$5.7 million (in 1977 dollars) of GAF sales available within the Kalispell trade area as a function of population growth alone over 1977. By 1985, this will increase to \$11.9 million. Combining this with uncaptured GAF sales of \$6.9 million in 1977 gives a total 1980 sales potential for new store space of \$12.6 million, increasing to \$18.8 million by 1985. All figures are in 1977 dollars.

Using an average 1977 GAF sales rate of \$70 per square foot, which is somewhat conservative, the above-mentioned potential would yield additional supportable GAF store space of 180,000 square feet in 1980 and 269,000 square feet in 1985 (based on constant 1977 dollars).

The most recent employment figures available for Flathead County are those for 1978. In that year, the Civilian Labor Force was estimated at 22,681 persons, with 20,908 employed. The unemployment rate was 7.8 percent. Unemployment in Flathead County generally runs higher than the Montana state-wide average. It also fluctuates significantly from year to year, often

depending upon cyclical forces in the wood products industry. Climatic conditions in the county also have an effect on month to month employment rates with the colder months creating downturns in outdoor construction, logging and agricultural activities.

The following table is taken from the Flathead County Overall Economic Development Plan of 1979 and gives general characteristics of the county's work force and unemployment rate.

There has been no economic production directly related to the proposed shopping center site in recent years other than for property taxes generated. The 52-acre site currently is valued at \$1,000 per acre for property tax purposes by the Flathead County Assessor. At 1979 millage levy rates of .227316, the project site would generate \$997 in property taxes for state, school and local government purposes.

b. Probable Impact of the Proposed Action

The most significant economic impacts of the proposed new shopping center will be on retail sales activity and employment in Flathead County and the immediate Kalispell area. The indication is that in 1977 there was an uncaptured retail sales potential in the Kalispell trade area of \$6.8 million. The combination of uncaptured potential sales plus additional sales based on growth gives a total potential projected retail sales (in 1977 dollars) of \$12.6 million in 1980 and \$18.8 million by 1985.⁴⁵

The new shopping center is projected to add 279,339 square feet of gross leasable area (GLA) in Phase I, which will be completed sometime in 1982. A second phase, the timing of which is as yet undetermined, will add an additional 73,529 square feet of GLA. Based on the assumption that a shopping center will generate at least \$70 per square foot in retail sales (in constant 1977 dollars), the new facility will generate \$19.5 million in Phase I. The second phase will generate an additional \$5.1 million.

CIVILIAN LABOR FORCE AND UNEMPLOYMENT RATES
Annual Averages - 1978 Monthly Data

<u>Year</u>	<u>CLF</u>	<u>Flathead County</u>		<u>Unemployment Rate</u>	<u>Montana</u>
		<u>Employed</u>	<u>Unemployed</u>		<u>Unemployment Rate</u>
<u>Annual Averages</u>					
1970	14,209	13,209	1,000	7.0	4.3
1971	14,623	13,612	1,011	6.9	4.8
1972	15,832	14,697	1,135	7.2	4.8
1973	16,673	15,505	1,168	7.0	4.8
1974	17,714	16,073	1,641	9.3	5.2
1975	17,742	15,925	1,817	10.2	6.4
1976	18,849	17,117	1,732	9.2	6.1
1977	20,948	19,106	1,842	8.8	6.4
1978	22,681	20,908	1,773	7.8	6.0
<u>Monthly Data - 1978</u>					
January	20,101	17,980	2,121	10.6	7.5
February	19,870	17,791	2,079	10.5	7.5
March	20,438	17,996	2,442	11.9	8.3
April	20,926	18,765	2,161	10.3	6.5
May	21,269	19,457	1,812	8.6	5.7
June	22,778	20,857	1,921	8.4	6.6
July	22,431	20,716	1,715	7.6	5.9
August	21,912	20,460	1,452	6.6	5.2
September	21,529	20,175	1,354	6.3	4.7
October	21,167	19,783	1,384	6.5	4.4
November	20,979	19,689	1,290	6.1	5.2
December	22,012	20,145	1,867	8.5	6.4

Source: Research and Analysis Section, Employment Security Division, Department of Labor and Industries, Helena, Montana.

The impact of the new facility on other retail activities in the Kalispell area could be notable. The new facility will absorb virtually all of the potential area retail sales projected from current sales "leakage" to other markets and from the estimated future population growth. However, it should be pointed out that some of the retail tenants in the new center may be relocating from existing locations in Kalispell. As much as 100,000 square feet or more of the space in the new center could be from existing retail outlets. In this event, the new shopping center's share of the uncaptured potential sales and sales related to new growth would be only a portion of that which is projected.

The construction of the new center, if it does induce tenants from other locations as expected, would have an impact on other retail areas of the community with the most likely adverse effect being felt in the downtown central business district. Such an impact is not quantifiable at this time because actual square footage allocations are not available.

In general, the new shopping facility will provide shoppers from the trade area with facilities which will concentrate a number of retail outlets in one location, provide a significant amount of free parking, and offer a climate-controlled enclosed shopping mall. The extent to which such shopping amenities will increase Kalispell's penetration of its regional trade area and capture more trade dollars from passing tourists, over and above the projections made above, is inestimable at this time. The new center does offer the prospect of an increased positive economic impact for the Kalispell area based on past experience of other similar facilities.

The construction cost of the project is estimated to range from \$9.5 million to \$12 million. Construction will last from 18 months to two years. Most of the materials and supplies will be obtained through local suppliers

or distributors. The building activity, coupled with construction employment which is discussed later in this section, will have a beneficial short-term impact on the local economy.

The impact of the proposed project on employment for the Kalispell area will be positive in the sense that a number of new service and trade-oriented jobs will be created. The project sponsors estimate that 500 to 600 full- and part-time jobs will be created during Phase I operation and 75 to 100 jobs in Phase II. It is likely that during Phase I operation, up to one-third of the retail operations in the new center will be relocations from existing sites in the area. If this relocation does in fact occur, then the actual number of new jobs created will be from 335 to 400. Under Phase II, it is expected that most of the retail outlets will be new to the area and that all of the jobs will be additions to the local labor force. As noted in subsection 3 of Part C of this section, approximately 90 percent of the new jobs projected for the center will be filled from the local labor force. Many of these jobs will represent the second job in a family or employment of young people on a full- or part-time basis. Given the existing relatively high and seasonally fluctuating unemployment situation in Flathead County, the center should provide a boost to the local job market.

There also will be an undetermined number of short-term construction jobs associated with development of the new center. The number of such jobs are inestimable at this time but it is presumed that most of the employment will be generated from the existing building trades labor force in the Kalispell area.

The fiscal impact of the project would appear to be positive for both the city and the county assuming that most of the major capital costs including installation of water and sewer utilities and immediate-area street improve-

ments are to be borne by the project sponsors. According to the Montana Department of Revenue, new commercial construction is generally assessed at approximately one-half of its construction cost. The project sponsors have estimated that the total land and building cost for the project will be approximately \$12 million for Phases I and II. Taking one-half of this value, \$6 million, times the statutory ratio of .0855 gives a taxable value for the completed project of \$513,000.

The following revenue will be generated annually for local governmental activities and schools:

If the property remains in unincorporated Flathead County:

<u>Jurisdiction</u>	<u>Levy Rate</u>	<u>Revenue</u>
Flathead County	.061516	\$ 31,558
County Roads	.012000	6,156
School District 5	.045982	23,589
General School	.064442	33,059
State School	.007000	3,591
Other (Community College, High School, etc.)	<u>.036376</u>	<u>18,661</u>
TOTAL	.227316 ¹	\$116,614 ¹

Note:

¹There will be an additional levy for the West Valley Fire District of .007874, which will generate \$4,039.

If the property is annexed to the City of Kalispell:

<u>Jurisdiction</u>	<u>Levy Rate</u>	<u>Revenue</u>
City of Kalispell	.084200	\$ 43,195
Flathead County	.061516	31,558
School District 75	.045982	23,589
General School	.064442	33,059
State School	.007000	3,591
Other (Community College, High School, etc.)	<u>.036051</u>	<u>18,493</u>
TOTAL	.299191	\$153,485

Assuming, again, that major capital improvement costs associated with the proposed project are borne by the sponsor either through direct assessment or through a special improvement district, the remaining costs to local government will relate primarily to operational and maintenance activities. The primary direct local services provided to the center will be law enforcement (security patrol, traffic and investigation), road maintenance and general activities (building inspection, public health, planning, administration, etc.). The Sheriff's Department has indicated that while it is generally understaffed, the new center will not represent an undue burden in terms of law enforcement responsibilities. Presumably, a significant portion of the \$31,558 annual property tax revenues estimated to be generated by the project could be allocated for law enforcement. The county also will receive some \$6,000 annually for road purposes. While there are no new county roads proposed as a result of the project, it would be anticipated that there will possibly be some additional maintenance costs for portions of Grandview and other county roads in the area that might receive additional traffic from the center. Specific operational and maintenance costs as a result of the project are inestimable at this time. The West Valley Fire District will receive approximately \$4,000 annually in property taxes generated by the project.

If the shopping center site were to be annexed to the City of Kalispell, the city would receive approximately \$43,000 annually in new property taxes. Such revenue presumably would be applied to offset the costs of law enforcement, fire protection, road maintenance, and general administrative functions. The city has indicated an interest in developing a new satellite fire station in the Buffalo Hill area. The costs of such a facility have been estimated

by city fire officials at approximately \$500,000 for the station and \$150,000 annually for staffing and equipment. The city has indicated that the need for such a station exists presently and would be associated with general growth in the Buffalo Hill area regardless of whether the shopping center is constructed or not. The proposed project would appear, however, to make the need more urgent.

The county also would receive property tax revenues for general governmental purposes if the property is annexed to the city. Given the fact that under such circumstances the county's responsibility for providing direct services would be considerably less than if the site remains in the unincorporated area, this situation would appear to be a positive budgetary factor for the county.

c. Measures to Mitigate Adverse Impacts

The only significant adverse economic impact generated by the proposed project would appear to be the detrimental effects on the downtown core area caused by potential relocation of existing retail outlets. The extent of such impacts could be mitigated by a major renovation of the downtown area and the provision of such amenities as adequate off-street parking and street furnishings. In 1979, the city adopted a downtown redevelopment plan which was put together by the Areawide Planning Organization with the support of city officials, city staff and the business community. The plan calls for a major renovation of the downtown area including new parking facilities, realignment of streets and the development of pedestrian malls. Federal Community Development funds amounting to some \$1.5 million have been received by the city for housing revitalization and street improvements in the Kalispell core area.

If the redevelopment planning continues and the proposed plan is eventually implemented it is possible that the downtown area would remain com-

petitive as a retail center and the adverse effects of the potential store relocation would be mitigated to some extent.

d. Unavoidable Adverse Impacts

Unless the proposed mitigating measures mentioned above or ones similar are implemented, the effect of the proposed shopping center on the existing downtown area would be considered as adverse and unavoidable in terms of retail economic activity.

7. Community Facilities

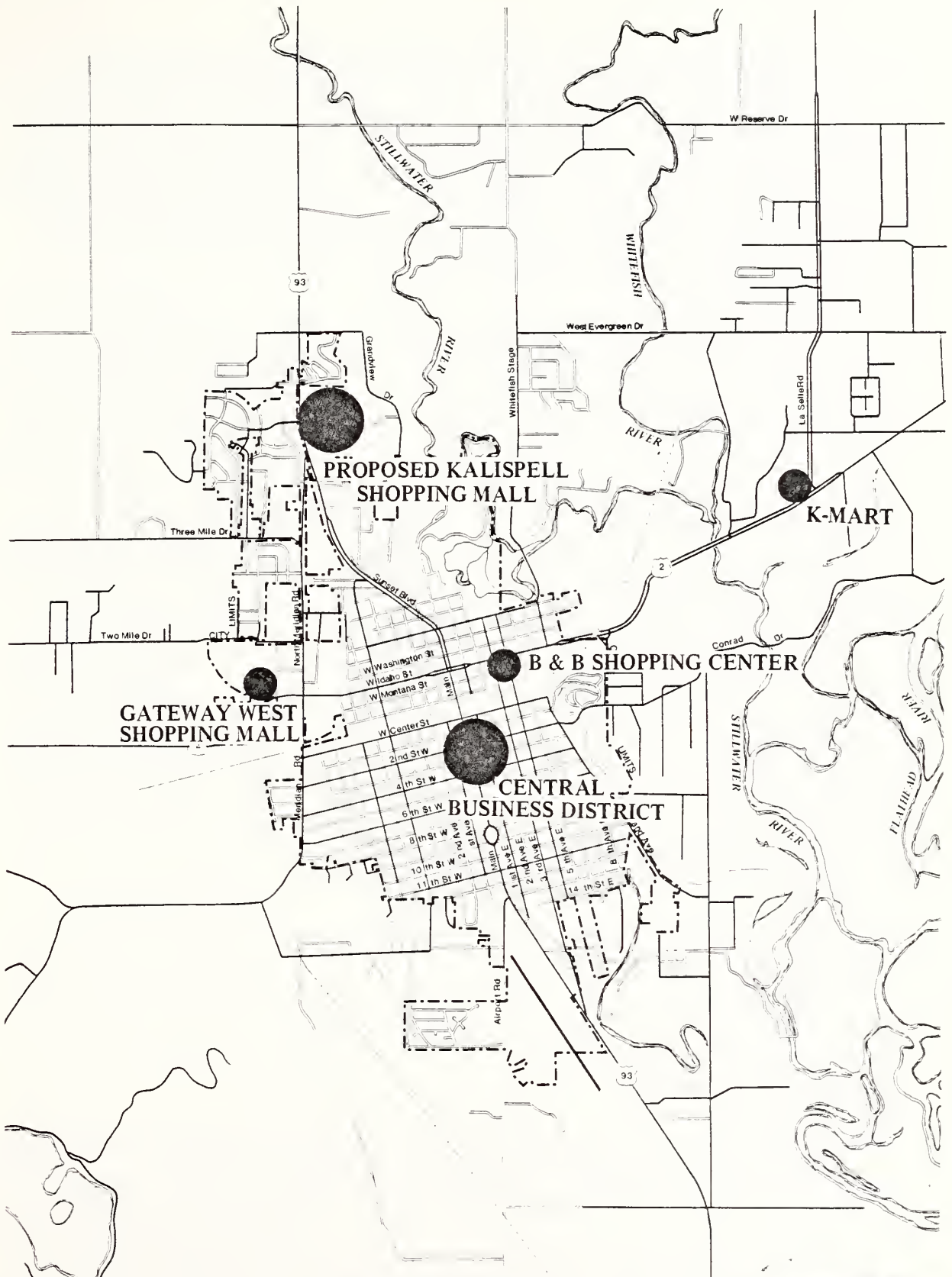
a. Existing Conditions

Kalispell has served as the cultural, social, governmental and retail trade center of northwestern Montana since the early 1900s. The trade area Kalispell draws from covers nearly 6,000 square miles. The downtown central business district has held a dominant position in Kalispell's retail trade area for many years. Other shopping facilities drawing from the Kalispell retail trade area include the Gateway West Mall located west of the downtown CBD, B&B Shopping Center just northwest of the CBD, and K-Mart located along U.S. Highway 2 northeast of Kalispell. (See the map on page 121.)

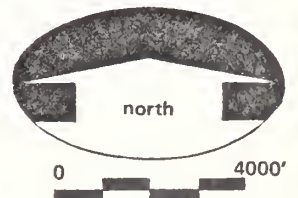
Other community facilities centrally located in Kalispell include the city hall, U.S. Post Office, the City library, and Flathead Community College. The County Courthouse and the Hockaday Art Center are also near the downtown area. A variety of churches are located in Kalispell also.

Besides numerous parks and recreation facilities discussed in subsection 10 of Part C of this section, the city municipal 27-hole golf course is located in north Kalispell, immediately southeast of the site.

School District 5 of Kalispell serves the city and the majority of residences located in the fringe area of Kalispell including the proposed project site.⁴⁶



MAJOR SHOPPING FACILITIES



HAWORTH & ANDERSON, INC.
Consultants in environmental analysis, planning, economic.

b. Probable Impact of the Proposed Action

The proposed Kalispell Mall will add a competitive element in the Kalispell trade area. Estimated unmet retail potential will be absorbed by the proposed shopping mall and some retail outlets now located downtown will relocate to the shopping mall. Please refer to subsection 5 above for a further discussion of economic impacts.

The proposed mall will increase traffic on major arterials, as explained in subsection 1 of Part B of this section. The increased traffic may increase the hazard presented to school children crossing U.S. Highway 93 on their way to and from school. This would necessitate putting in a traffic signal and crosswalk near the site along U.S. Highway 93, and a school crossing guard. There is currently one school crossing highway guard located at the intersection of Wyoming Street and U.S. Highway 93 south of the site.⁴⁷

The increased employment opportunities that will be presented by the construction and operation of the proposed mall will possibly present an indirect impact on schools and community facilities in that new residents may move into the area.

c. Measures to Mitigate Adverse Impacts

None.

d. Unavoidable Adverse Impacts

None, except as explained in other sections.

8. Public Safety Services

a. Existing Conditions

The site of the proposed project is located in Flathead County with the Flathead County Sheriff's Department having the primary law enforcement jurisdiction. The County Sheriff's Department consists of 18 patrol officers operating on four- to five-man shifts. The County Sheriff's Department maintains a mutual aid agreement with the Kalispell City Police Department.⁴⁸

The City Police Department consists of a staff of 21 officers and five office staff. Of the officers, 17 are assigned to patrol duty. The city property immediately north, south, and west of the site is patrolled by the City Police Department. Police protection in the Buffalo Hill area is currently adequate, according to a survey conducted in the summer of 1979 by the APO staff.

The Montana State Patrol has jurisdiction on U.S. Highway 93. The State patrol maintains an examining station just south of the site on Conway Drive.

The West Valley Volunteer Fire District has primary fire protection responsibilities for the project site. The West Valley District Station is located about four miles north of the site and would have a response time of five to 10 minutes. The County Fire Districts and the Kalispell Fire Department have mutual aid agreements. The West Valley District has a class 8 rating and is equipped with the following apparatus: one pumper, 950 gpm; one pumper, 1,000 gpm; one tanker, 2,500 gallons; one tanker, 2,800 gallons; and one tank unit, 350 gallons.⁴⁹

Fire protection for areas immediately north, south and west of the site within the city limits is provided by the Kalispell Fire Department. The Kalispell Fire Department is located in the downtown city hall and would have a response time of about five minutes to the site. Kalispell has a fire insurance rating of 5. The city fire department is equipped with the following apparatus: one 1973 Superior 1,250 gpm pump; one 1978 Seagraves 85-foot aerial ladder and 1,250 gpm pump; two 1950 Purshes 750 gpm pump; and one 1925 La France 1,000 gpm pump.⁵⁰

The area immediately northwest of Kalispell has undergone development in recent years and the demand for a city satellite fire station in this area

is evident. Presently there is adequate protection provided by city and county fire districts for the homes in the Buffalo Hill area. However, the hospital and related medical facilities and future growth anticipated in this area will necessitate expanded fire protection facilities in the north Kalispell area.

b. Probable Impact of the Proposed Action

It is anticipated that the potential for crimes typically associated with a large shopping facility will increase with the development of the site. Furthermore, the increase in traffic near the proposed site will increase the potential for vehicular accidents. The shopping center will utilize automatic security systems and a private security patrol. Because of these factors, the demand for police assistance will in all likelihood be less than that for a high-density residential development in terms of the number of calls received. The Flathead County Sheriff's Department has indicated it foresees no problems in providing service to the shopping center site.

If the 12-inch city water main which passes through the southwest portion of the site is not tapped to supply the site with city water, an on-site water system will be developed. The on-site system will consist of two wells. One well will be used for fire protection water supplies. A 150,000 to 200,000 gallon elevated tank will be constructed on-site to provide water storage for fire protection. This system will meet Insurance Service Organization Requirements and provide adequate water for fire protection needs on-site. The shopping center will be designed with a sprinkler system in accordance with Allendale Insurance and Protection mutual density requirements.⁵¹

c. Measures to Mitigate Adverse Impacts

Mitigation of fire potential for the proposed project could be achieved through maximum utilization of noncombustible materials in all construction and through the use of an automatic sprinkler system.

d. Unavoidable Adverse Impacts

None.

9. Public Health Services

a. Existing Conditions

The Buffalo Hill area houses most of the area's health and medical facilities. The Kalispell Regional Hospital, the Immanuel Lutheran Nursing Home, the Medical Arts Office Building, and medical office complexes are located south of the project site within the city limits. Sunnyview Lane provides the main access to these facilities and Conway Drive is used primarily as an emergency entrance. The Kalispell Regional Hospital employs 400 people and averages about 300 visitors per day, 80 inpatients per day, 35 emergency room patients per day, and 60 service vehicles per day. The Medical Arts Building houses the medical clinics of 35 physicians. These physicians and their employees, patients, and service vehicles are an integral component in delivery of medical care at the Kalispell Regional Hospital. Medical clinics on Burns Way just south of Conway Drive house physician and dentist offices also.⁵²

The hospital owns quite a large area of land extending both north and south of Sunnyview Lane. A number of new programs are planned for the regional hospital area including hospital expansion, increased outpatient/ambulatory care programs, a rehabilitation center, a nursing home, a retirement home supervised with living quarters, and hotels for visitors and outpatients. No specific time schedule for implementing these programs has been adopted.⁵³

An emergency alert system helicopter is based at and dispatched from the hospital site. The City Fire Department operates three ambulances which are manned around the clock and are located at the main fire station in downtown Kalispell.⁵⁴

b. Probable Impact of the Proposed Action

The proposed shopping mall facility alone will not have an adverse impact on the health services offered in the area. However, the traffic generated by the mall facility might have an indirect adverse impact on medical facilities service routes. Increased traffic on U.S. Highway 93 will have a potential impact on vehicles attempting to turn left onto and from both Sunnyview Lane and Conway Drive. Also, the south access to the project site off of Sunnyview Lane will add additional vehicular movements on this roadway. Traffic generated on these roads by medical facilities and residents in the area is now significant. Development of the mall coupled with future development plans in the area will add increased traffic pressure on the roadways serving the medical facilities.

c. Measures to Mitigate Adverse Impacts

The increased traffic that will be generated on Sunnyview Lane could be mitigated by not providing an access to the shopping center site from that roadway. Alternative access points and mitigating measures are further discussed in subsection 1 of Part B of this section.

d. Unavoidable Adverse Impacts

The increased vehicular traffic generated by the proposed project will have an unavoidable adverse impact on roadways serving the medical facilities. These traffic impacts can be mitigated to some extent to alleviate potential traffic conflicts in the area.

10. Recreation

a. Existing Conditions

Park facilities in the Buffalo Hill area are fairly well developed and appear to be adequate for the needs of residents in the area. Parks located near the site include Lawrence Park (10 acres), Northridge Park (3.6 acres), Hawthorne Park (1.9 acres), and Sunset Park (4.0 acres).⁵⁵ The 27-hole city municipal golf course is located south and southeast of the proposed site.

In addition to these local facilities there are many recreation opportunities offered in Flathead County. To the north of Kalispell is Glacier Park and Big Mountain ski area and to the south is the Flathead Lake area. The many forests, lakes, and rivers in the area offer unlimited recreational opportunities.

b. Probable Impact of the Proposed Action

The proposed project should not have any affect upon existing recreational facilities or result in the need for new or altered park facilities in the area.

c. Measures to Mitigate Adverse Impacts

None.

d. Unavoidable Adverse Impacts

None.

V. ECONOMIC AND ENVIRONMENTAL BENEFITS AND COSTS

A. Primary, Secondary and Cumulative Impacts

The probable environmental impacts associated with the project are discussed in detail in the various categorical sections preceding this section. The purpose of this section is to provide a short and concise summary of those impacts and to identify impacts of primary, secondary or cumulative significance.

1. Primary Impacts

a. Natural Environment

Construction of the proposed project will convert a site that is presently an undeveloped agricultural field into a built-up commercial development including structures housing stores, a covered mall and service facilities; paved parking areas with landscaping and lights; and access roadways. The construction process will involve the shaping of what is now an undulating field into a flat building site. Natural vegetation, consisting mostly of grasses and weeds, and habitat for small animals and birds will be removed during construction. The vegetation and habitat that will be replaced will be that associated with landscaping on the site.

The erection of structures and paving of parking lots with impervious surfaces will change the natural drainage characteristics of the site.

b. Man-made Environment

Impacts of significance under this category would be those related to traffic and land use. The new shopping center will have a major effect on traffic patterns and traffic levels in the immediate vicinity of the mall. Traffic will be substantially increased on U.S. Highway 93 in the vicinity

of the site, on Meridian Road and on the Grandview-Sunnyview loop road system. New traffic controls in the form of signalization, new holding lanes, channelization and intersection realignments will be necessary in the immediate vicinity of the center.

Primary land use impacts associated with the project will be the conversion of a site which is presently an open field into a center for retail shopping and commercial activity, and the need for resolution of a conflict between the current zoning designation of the property (commercial) and the comprehensive development plan designation (urban and high-density residential).

The new shopping center will result in consumption of energy and water, the amounts of which would not be considered significant in terms of impact on the Kalispell area. The center also will produce increased levels of noise, air emissions, sanitary sewage, solid waste and storm drainage. The noise levels generated from a covered shopping mall will primarily be related to traffic and would not be considered significant in view of existing noise presently generated in the area by traffic along U.S. Highway 93. Additional levels of suspended particulates and carbon monoxide will be generated by the increased traffic, but pollutant volumes will remain within acceptable federal standards. Sanitary sewage produced as a result of the project will be less than comparable amounts produced by a residential development on the site and will be within the capability of being handled either by on-site disposal or by disposal into the city's system. Storm water drainage will be collected and carried to a retention pond on the site and be disposed of by absorption into the soil or evaporation. The amount of solid waste generated by the project will be capable of disposal in the county landfill north of the site, which has an anticipated future life of 50 years.

Primary construction impacts will include some minor traffic congestion caused by movement of heavy equipment to and from the site, the potential of some air pollution in the form of dust during the earth shaping phase, noise from construction activity and vehicles, and the potential for some safety hazards during construction.

c. Social Environment

The primary impacts of the project under this category relate to the economy and employment. The new shopping center will add a number of new retail outlets as well as providing for the relocation of several existing outlets, all of which will provide expanded shopping facilities for people in the Kalispell regional trade area. The project will have an impact on the economy in the sense that it will capture some of the potential trade dollars presently leaving the area as well as meeting the potential retail trade needs brought about by new growth.

The proposed project will create a maximum potential of 700 jobs after completion of Phase II. It is anticipated that approximately 500 of these jobs will be new to the area. Most of the new jobs will be filled from the existing labor force. The project also will generate an undetermined number of construction jobs. It is estimated that approximately 70 jobs will be filled by persons from outside the area, which will result in a potential population increase of some 200 to 250 persons. The project will have a primary housing impact of approximately 70 dwelling units, well within the capability of the area to handle.

The new project will generate property taxes which will go to the support of county and possibly city government (the latter depending upon whether the site is annexed or not), local and state schools and various other local functions. The center will have an increased demand on local law enforcement,

fire protection, road maintenance and general administrative services. These impacts will be offset by the new property taxes though such new taxes will not be sufficient to alter existing conditions in the event that existing service levels are already deficient.

Capital improvements directly caused by the center, such as traffic controls, roadway alignments, utility hookups, etc., will be required to be provided by the project sponsor and will not be a financial responsibility of local governments.

2. Secondary Impacts

a. Natural Environment

There is a potential for storm water drainage from the site eventually making its way into the Stillwater River. It is suggested as a mitigating measure that all storm drainage be retained on site and that any overflow be subjected to removal of salts and petroleum residue.

Acceleration of projected residential and/or commercial growth in the area indirectly caused by the proposed project will result in additional pressures on the natural environment, particularly to the north of the site and to the Stillwater River which meanders through the Buffalo Hill area.

b. Man-made Environment

Traffic generated by the proposed center will cause increased traffic loads on the major intersection of U.S. Highways 93 and 2 south of the site. The center also will accelerate the need for the extension of Evergreen Drive west to Grandview and for the improvement of West Reserve Drive, both north of the proposed site.

The proposed center will ultimately have an effect on land use in the Buffalo Hill area in the sense that the land use mix, presently planned as

primarily residential, will reflect greater diversity. It can be expected that the proposed project will be a stimulus for more commercial space--both office and retail--being developed in the area. The location of such uses and the extent to which they occur will be governed largely by the planning guidelines and controls (or lack of them) established by the local jurisdictions with planning responsibility.

c. Social Environment

The proposed mall will strengthen Kalispell's position as a retail trade center for its market area. Shopping opportunities presented by the more than 50 retail outlets will add to the diversity of commercial activity in the area. The extent to which the project will impact downtown core area retail activities is unknown at present. If major retailers relocate from downtown to the new mall, this would be a significant adverse impact on the downtown core. Such an impact, however, is capable of mitigation by implementation of downtown redevelopment plans which would add certain amenities to the core area, thus improving its competitive position in the retail market.

3. Cumulative Impacts

a. Natural Environment

Location of the shopping center on the proposed site will virtually assure continued growth in the Buffalo Hill area northwest of Kalispell. The pace at which such growth occurs is inestimable at this time but the new homes, subdivisions, streets, schools, etc. will gradually replace the natural environment in the area which presently is largely agricultural and open space. Much of this growth will occur whether the shopping center is built or not. The function of the center will be to accelerate growth and be a stimulus for a broader diversity of potential land uses.

b. Man-made Environment

Accelerated growth stimulated by the proposed project will ultimately require expanded street and utility systems in the area. The extent and cost of such improvements are inestimable at this time. These impacts, however, are typical of those normally associated with suburban growth. Their significance in terms of being adverse, if at all, will be determined to a great extent by the manner in which local government and other responsible agencies plan and prepare for such future occurrences.

c. Social Environment

The proposed project will serve as a stimulus to new growth and generally add to the economic well-being of the area. The project will generate some \$20 million in annual sales, will provide a consistent annual job resource and will be a continuing attraction for shoppers from the regional trade area. All of these impacts will be positive for the Kalispell area.

If the downtown core area does not meet the challenge of competition presented by the new mall and current or similar redevelopment programs are not implemented, then, over time, the retail trade importance of the core area would diminish. To some, this effect would be considered adverse.

The proposed shopping center will be a positive element in the general urban design of the Kalispell area. It will be of contemporary design and will be constructed as a unit taking into consideration parking, lighting, traffic access and landscaping. If peripheral development is allowed to occur in a haphazard manner and/or strip development along U.S. Highway 93 is allowed to take place, there would be an ultimate potential for adverse aesthetic impacts. Such potential impacts are beyond the control of the project sponsors but certainly within the purview of the future plans and policies of the county and city agencies with jurisdiction in the Buffalo Hill area.

B. Potential Growth Inducing or Inhibiting Impacts

The proposed shopping center will have the effect of accelerating growth in the Buffalo Hill area and thus could be considered a growth inducing influence. The ultimate growth impacts can only be a matter of speculation at this point. It can be expected, however, that operation of the center will create pressures in the general site area for additional commercial and residential development. The proposed project also will stimulate economic growth in the Kalispell area based upon an infusion of construction dollars, the capturing of additional trade dollars not presently being spent in the region, and the creation of new full- and part-time jobs.

The project is not expected to have any growth inhibiting impacts. It might be argued that development of the center will adversely affect growth in the downtown core area. However, such a conclusion is relatively unsupported at this time. This eventuality would depend to a great extent upon the response of the downtown interests to increased forces of competition and general economic factors of the market place, which are beyond the scope of this analysis.

C. Economic Benefits and Goals

The proposed shopping center will generate some \$20 million in retail sales in the Kalispell regional trade area. It is anticipated that much of the new retail trade will tap existing potential sales volumes presently being spent in other areas or not being spent at all. This effect would tend to reinforce the Kalispell area's position as the center for a three-county retail trade area and as a magnet for dollars generated by the strong tourism influences in the region. In addition, the facility will generate new income in the community from construction activity and new temporary and permanent employment. All of these impacts will be economic benefits.

As some retail outlets relocate from their existing sites within the Kalispell area there may be some site-specific economic costs related to loss of retail tenants. This situation would appear to have the most likelihood in the downtown core area, which may be facing the loss of several major retail outlets. The extent of such relocation is inestimable at present and the ultimate effects will depend upon normal forces of the market place and the response to downtown interests to the new competition.

There will be some increased costs associated with the project for increased public facilities and services. Such costs are capable of full or partial mitigation through increased tax revenues and/or assessments paid by the project sponsor.

D. Environmental Benefits and Costs

The most significant environmental benefit from the proposed project is the fact that a number of commercial retail outlets will be concentrated in a planned shopping center which will provide adequate parking, lighting, landscaping, and access points. From a land use planning standpoint, such an arrangement is preferable to haphazard strip development.

The environmental costs of the project have to do with increased traffic being generated in the Buffalo Hill area and the potential for accelerated growth demands, particularly for commercial development, in the vicinity of but not immediately associated with the proposed site. Other environmental costs will be associated with increased noise, vehicular emissions, energy usage, water and sewerage demands, and storm water runoff. While there will be impacts in all of these areas, none are expected to be beyond either acceptable state or federal standards or the community's capability of handling them.

E. Short-term Versus Long-term Costs and Benefits

In the short term, the proposed project is expected to provide an immediate boost to the economy in terms of construction activity and eventually the actual operation of the facility. Such economic benefits will come in the form of purchases of materials and supplies, increased retail sales, increased construction and both full- and part-time sales employment, and reinforcement of the Kalispell area as the trade center for the region.

There will also be some short-term costs associated with the project. The effects of increased traffic and congestion will be felt during both the construction and operational phases of the project. Some environmental effects such as increased noise and vehicular emissions will be noticed, though they are not expected to be significant.

The relocation of businesses from existing locations in the community to the new mall will have a short-term cost during the period in which new tenants or uses are found for the original buildings or property.

The long-term benefits of the proposed project will be those primarily associated with economics. It is anticipated that as the trade area grows the future Phase II portion of the project will be added, which will increase the general economic benefits mentioned above. The project will continue to provide an employment opportunity and, over time, will become a social gathering place.

The development of the proposed project will preclude future potential uses of the site. These include the possibility of urban or high-density residential uses as proposed in the Comprehensive Development Plan and the possibility of expansion of the medical/institutional complex presently existing to the south of the site.

The long-term effects also will have an impact on property in the immediate site area. Some locations presently allocated for future residential use may face an increased demand for use as commercial retail or office space. The proposed project also is expected to accelerate the growth rate in the Buffalo Hill area beyond that which has already been projected by the Areawide Planning Organization.

VI. ALTERNATIVE ACTIONS AVAILABLE TO THE DEPARTMENT

The purpose of this section is to identify those alternative actions which are available to the Highway Department within its responsibilities for acting upon access permits. The alternatives available to the Department are: (1) it can deny the permit; (2) it can approve the permit request based on the design of the sponsor; or (3) it can approve an alternative access design.

Denial of the permit presumably would mean that the sponsor would have to consider an alternative location for the proposed shopping center or drop the project entirely. If the sponsor's proposed design is accepted, it would be assumed that the project can proceed at least with respect to development of the approved access points. The question of how cost is to be apportioned in relation to any proposed off-site improvements would be subject to negotiation between the Department and the sponsor. It would be assumed that off-site capital improvement costs directly attributable to the project would be borne by the sponsor.

The following analysis addresses several alternative suggestions for changes to the project sponsor's design as well as several alternatives related to the Meridian Road alignment.

As a general guideline, shopping center accesses with full turning movements should be spaced a minimum of 500 to 600 feet apart. The internal access roads should preferably be 200 feet long to prevent backups onto the highway.

The access at Northridge Drive is adequately located, from the point of view of traffic handling and dispersion. The north access is, however, too close to Indian Trail Road, if it were to have full turning movements. Also,

there will be a residential access (Summit Ridge Drive) aligned with Indian Trail Road. This access will need left-turn storage for northbound to westbound vehicles. Therefore, there is not enough room to allow southbound to eastbound left turns into the mall site. For this reason, it is recommended that the north access be restricted to only right-in/right-out movements and that it be a minimum of 300 feet south of the Indian Trail Road alignment.

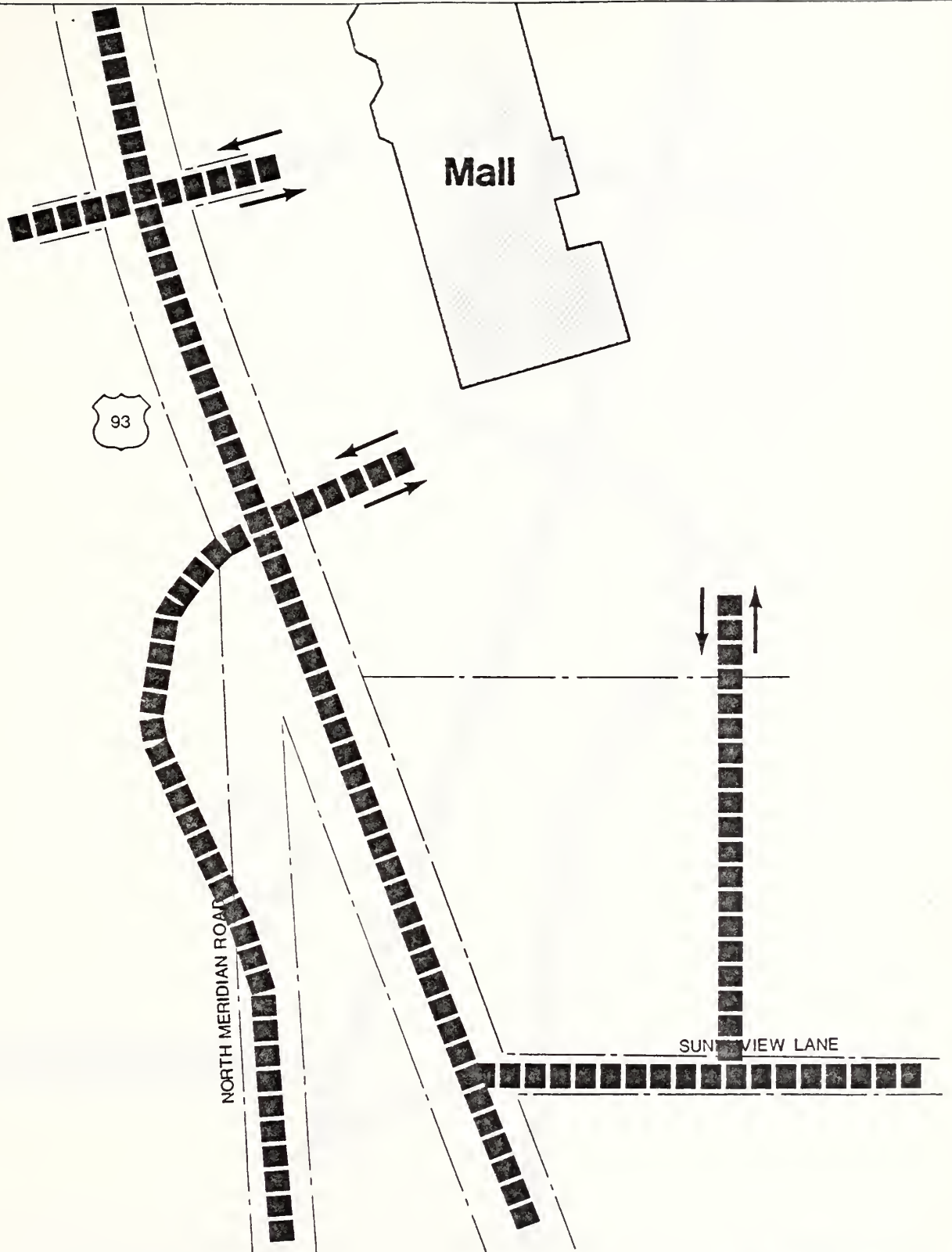
The access on Meridian Road has several alternative variations which may affect Sunnyview Lane and the south access to Sunnyview Lane.

The map on the following page shows Alternative 1, which is basically the same as originally proposed by the developer. The traffic assignment diagram on page 43 shows that the south access to Sunnyview Lane would be used only by a small percentage of shopping traffic (65 inbound and 100 outbound). The conclusion is that the shopping center does not need this south access to Sunnyview Lane.

A scheme without the south access to Sunnyview Lane is shown as Alternative 2 on page 142. In this scheme the shopping traffic would shift to the intersection of Meridian Road and not use Sunnyview Lane at all. Thus, the hospital and related traffic would be physically separated from shopping center traffic. There would still be capacity in the Meridian Road intersection to handle the center's additional traffic.

Alternative 3, shown on page 143 illustrates a potential realignment of Meridian Road to intersect U. S. Highway 93 at Sunnyview Lane. Although this alternative would create a busy intersection at Sunnyview Lane, it would have the advantage of eliminating one intersection on U. S. Highway 93. Therefore, there would be one less conflict point.

A disadvantage of Alternative 3 is that there would be nearly 900 (inbound and outbound) shopper traffic vehicles per hour on Sunnyview Lane,



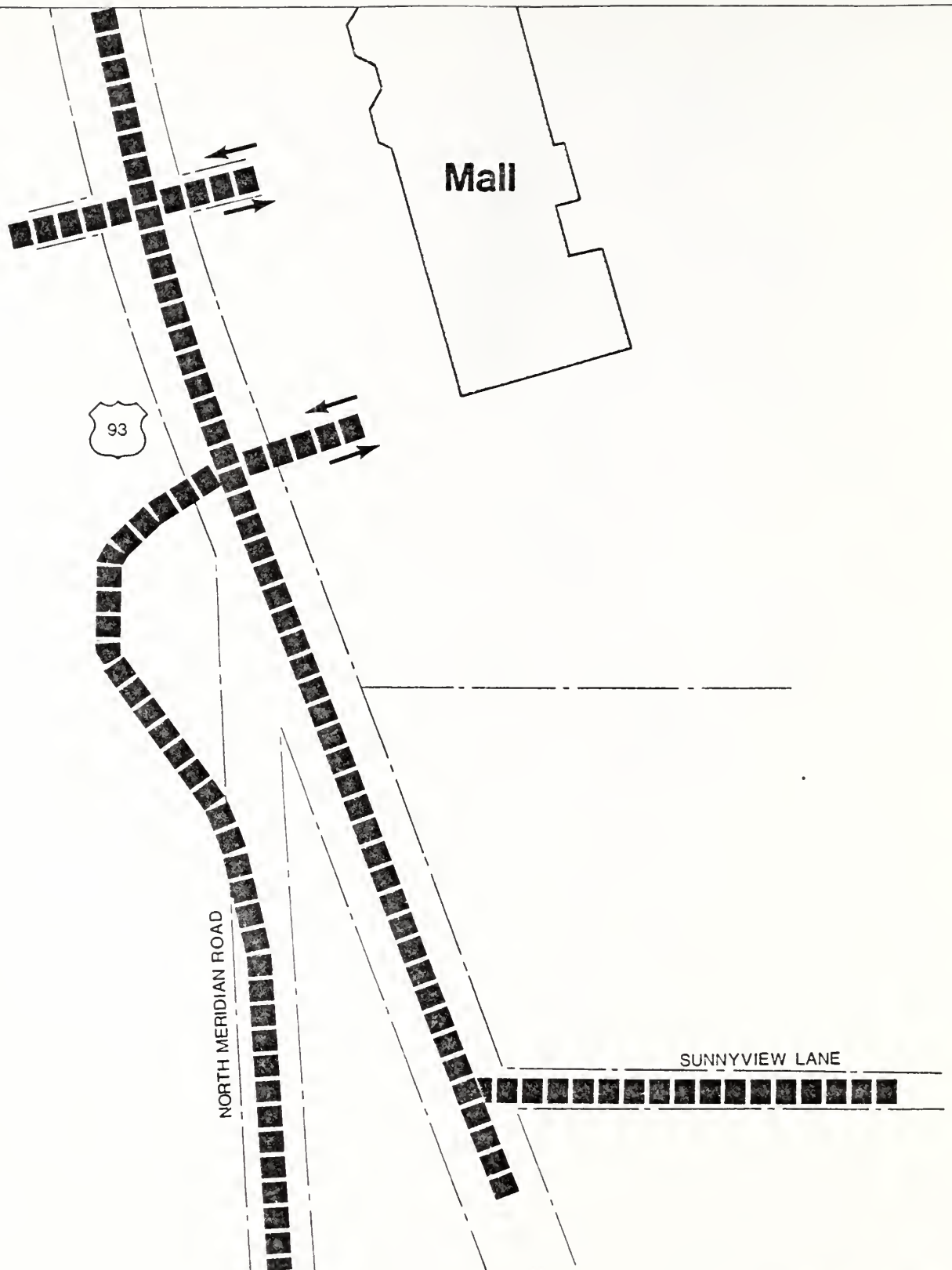
TRAFFIC ALTERNATIVE ONE



not to scale



HAWORTH & ANDERSON, INC.
Consultants in environmental analysis, planning, economics



TRAFFIC ALTERNATIVE TWO



not to scale

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PLANNING • ENGINEERING • DESIGN • CONSTRUCTION

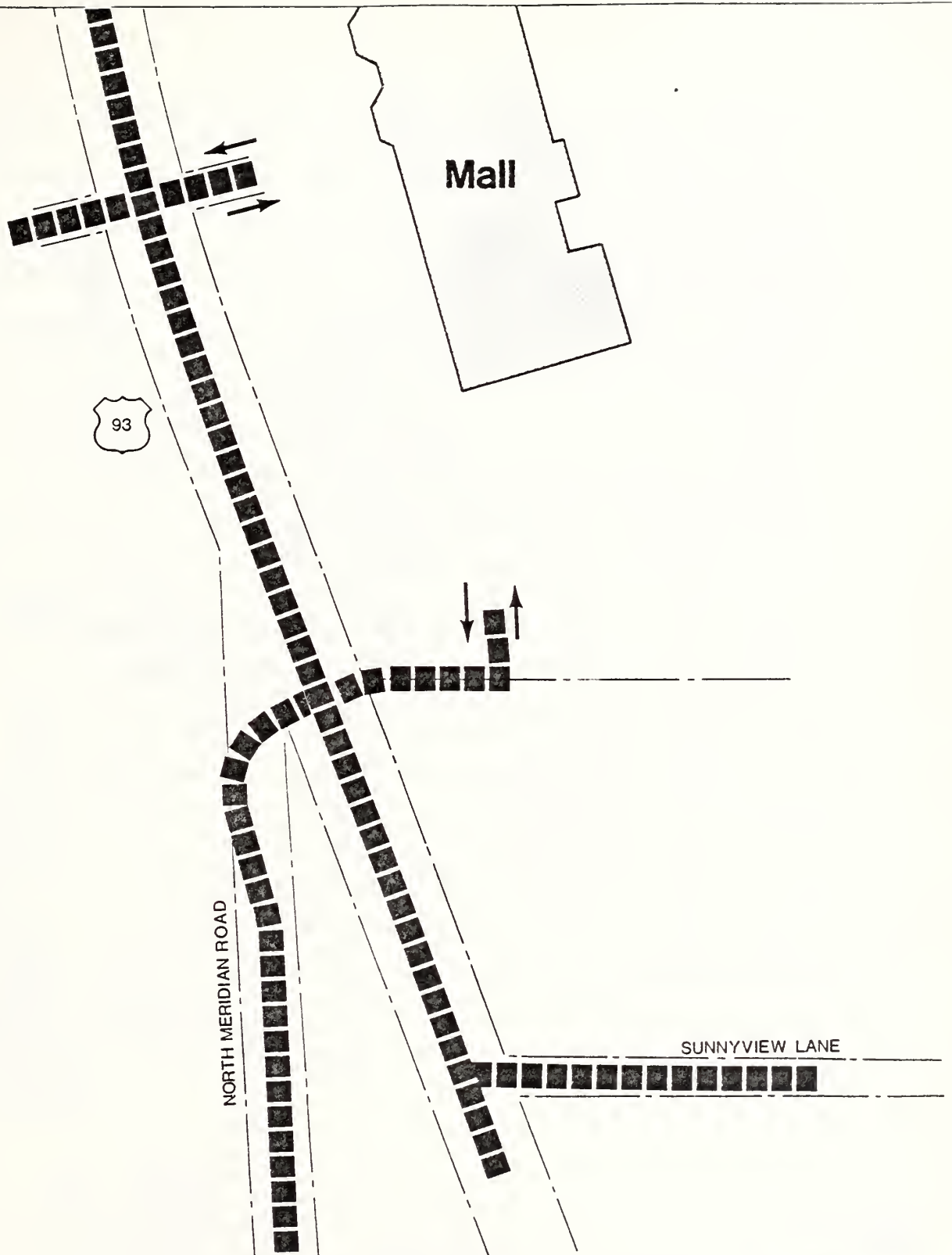


which could possibly disrupt access of emergency vehicles to the hospital. Under this alternative, Sunnyview Lane would have to be widened between U. S. Highway 93 and the shopping center access. There is also a physical disadvantage to Alternative 3. The existing difference in elevation between Meridian Road and Sunnyview Lane is such that it would require a 10 percent gradient to achieve this link. This would be considered excessively steep under the Montana Department of Highways design standards.

Alternative 4, shown on the following page, is similar to Alternative 2, except that the Meridian Road intersection is shifted to the south property boundary of the site. One potential purpose for this alignment is to allow flexibility regarding future access to the parcel between this boundary and Sunnyview Lane. If, for example, this parcel is occupied in the future by medical-related establishments or offices, there could be a local access from Sunnyview Lane. If, however, there is future commercial development on this parcel, access would probably be from the north, i.e., from the Meridian Road extension, without direct internal connection to Sunnyview Lane.

Another advantage of Alternative 4 is that it would allow for a future extension of the road along the property boundaries, with a possible connection to the east (e.g., to Ridgeview) for local service. An access to the east, linking the northeast of the site to the bend in Grandview Drive, could also be desirable in the future.

The map on page 146 illustrates the projected traffic volumes related to Alternative 4. The total projected intersection volume of the Meridian Road/U. S. Highway 93 intersection is 2,860 vehicles per hour and the calculated volume-to-capacity ratio is 0.84. This represents Level of Service "D" conditions. Level of Service D describes a condition approaching



TRAFFIC ALTERNATIVE FOUR



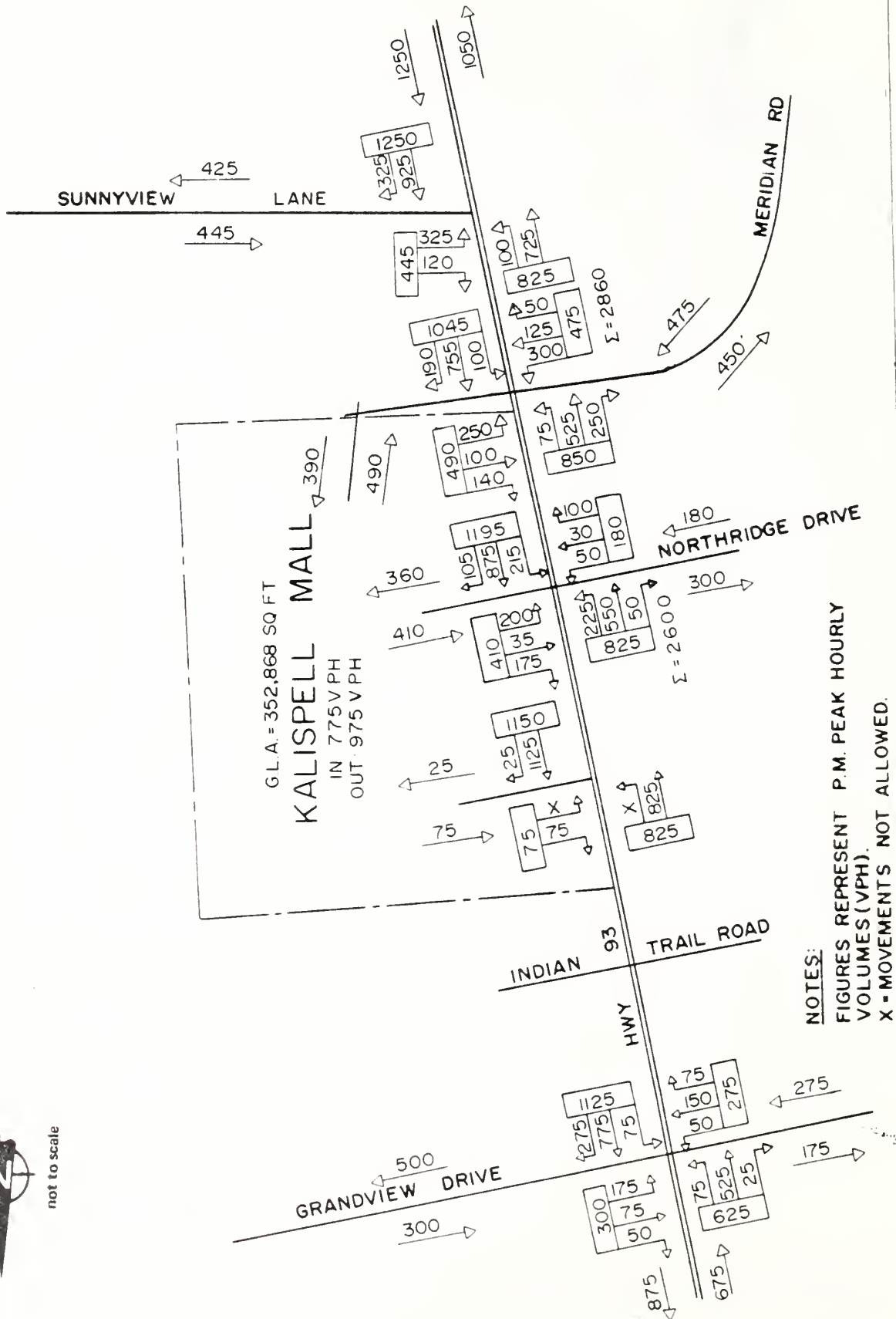
not to scale



HAWORTH & ANDERSON, INC.
Consultants in environmental analysis, planning, economics



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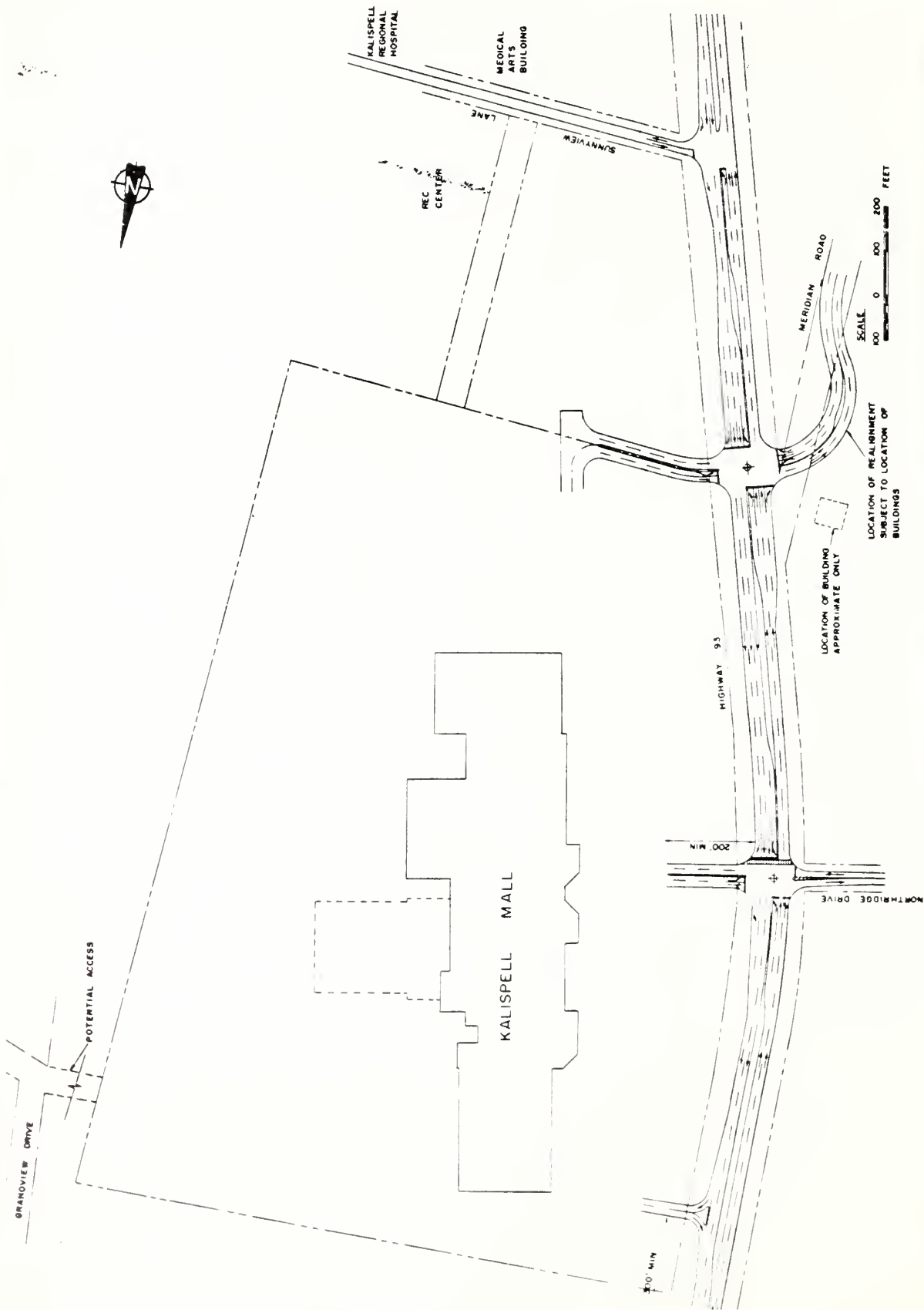
1990 COMBINED TRAFFIC (P.M. PEAK HOUR)
ALTERNATIVE FOUR NETWORK

unstable flow, with tolerable operating speeds being maintained though considerably affected by changes in operating conditions.

The map on the following page is a functional design of roadways showing the recommended lane arrangement corresponding to Alternative 4. It is anticipated that traffic signals would be needed at the U. S. Highway 93/ Meridian Road intersection and possibly at the intersection of U. S. Highway 93 and Northridge Drive.

Any intersection and road improvements on Sunnyview Lane will be a function of how the hospital and adjacent lands develop in the future. It would be desirable for a strong pedestrian system to be planned, connecting the shopping center site with the Northridge residential area, and with the Sunnyview medical/hospital complexes.

The table on pages 149 and 150, and the associated figure on page 151, provide comparative cost estimates for Alternatives 1 through 4. As the table makes clear, Alternatives 1 and 3 would cost about the same amount. Alternatives 2 and 4 would cost about the same as each other but considerably less than Alternatives 1 and 3. It should be noted that these cost estimates do not include the costs for construction of internal access roads, property acquisition, landscaping, sidewalks, signing, and painting.



RECOMMENDED ALTERNATIVE ROADWAYS

CONSTRUCTION COST ESTIMATES FOR THE ALTERNATIVES

<u>Alternative 1</u>	<u>\$</u>
(a) Improvements to Meridian Road Intersection:	
(i) Improve Meridan Road Approach:	202,500.00
(ii) Improve Highway 93:	77,500.00
(b) Improvements on Northridge Drive Intersection:	63,000.00
(c) North Access Improvements:	24,000.00
(d) Sunnyview Lane Access, etc.:	229,000.00
(e) Highway 93 Overall:	<u>252,000.00</u>
	Subtotal: 848,000.00
(f) Engineering & Contingencies: 20%	<u>170,000.00</u>
	TOTAL: <u>\$1,018,000.00</u>

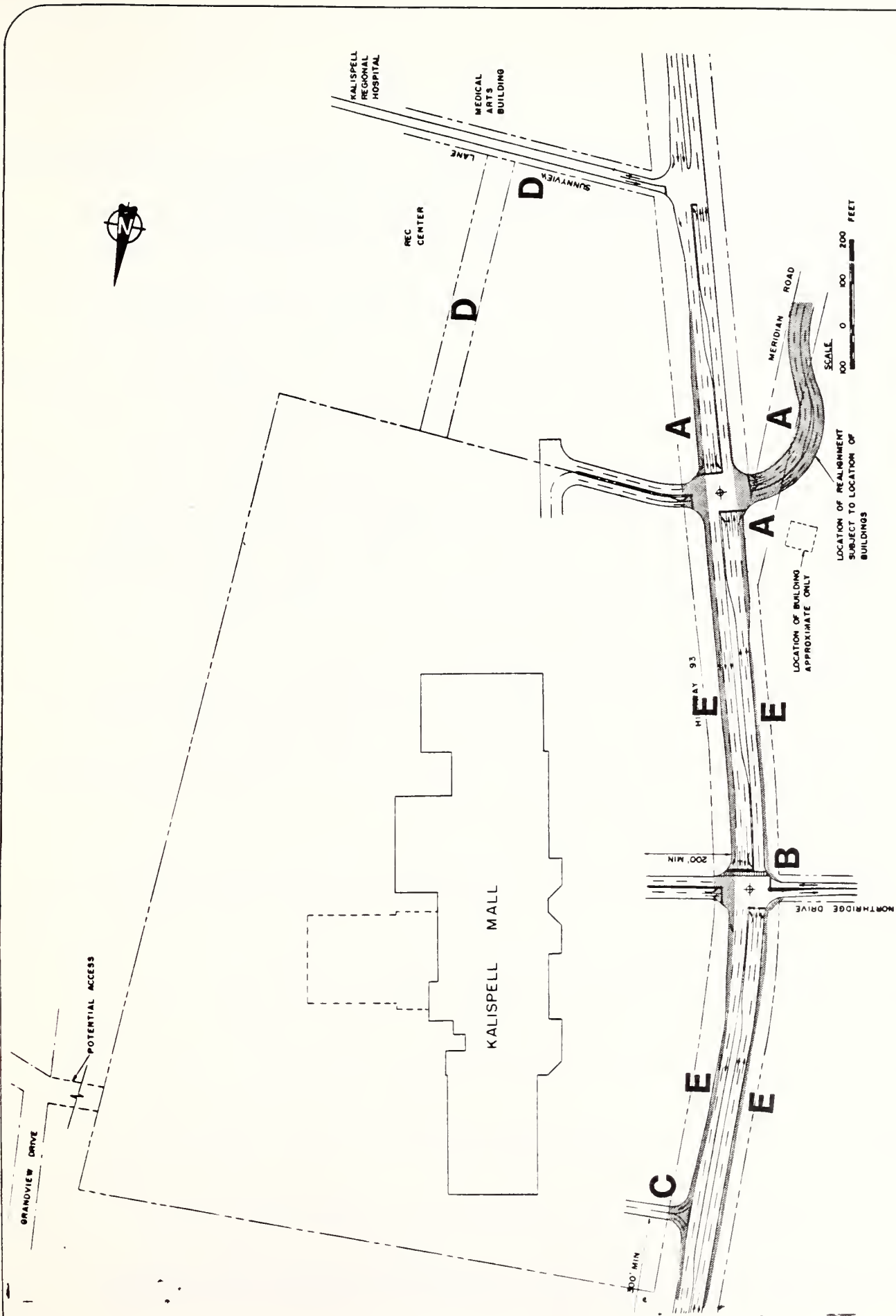
<u>Alternative 2</u>	
(a) Improvements to Meridian Road Intersection:	
(i) as in 1(a) (i) plus lengthen R/T lane, N/B to E/B:	206,000.00
(ii) as in 1(a) (ii):	77,500.00
(b) as in 1(b):	63,000.00
(c) as in 1(c):	24,000.00
(d) Sunnyview Lane:	00.00
(e) Highway 93 Overall:	<u>168,000.00</u>
	Subtotal: 538,500.00
(f) Engineering & Contingencies: 20%	<u>108,000.00</u>
	TOTAL: <u>\$ 646,500.00</u>

Note: The letters in parentheses refer to roadway segments as shown on the map on page 150. These cost estimates do not include construction of internal access roads, property acquisition, landscaping, sidewalks, signing, and painting.

Construction Cost Estimates for the Alternatives
(Cont.)

<u>Alternative 3</u>	<u>\$</u>
(a) Improvements to Meridian Road Intersection:	
(i) Meridian Road Approach:	244,500.00
(ii) Improve Highway 93:	80,000.00
(b) Improvements to Northridge Drive Intersection:	48,000.00
(c) as in 1(c):	24,000.00
(d) Sunnyview Lane Access, etc.:	245,500.00
(e) as in 1(e):	<u>252,000.00</u>
	Subtotal: 894,000.00
(f) Engineering & Contingencies: 20%	<u>179,000.00</u>
	TOTAL: <u>\$1,073,000.00</u>

<u>Alternative 4</u>	
(a) as in 2(a) (i) and 2(a) (ii):	283,500.00
(b) as in 2(b):	63,000.00
(c) as in 2(c):	24,000.00
(d) as in 2(d):	00.00
(e) as in 2(e):	168,000.00
plus lengthening of additional 3rd lane N/B	<u>17,000.00</u>
	Subtotal: 555,500.00
(f) Engineering & Contingencies: 20%	<u>112,000.00</u>
	TOTAL: <u>\$ 667,000.00</u>



ROADWAY SEGMENTS

VII. RECOMMENDED DEPARTMENT OF HIGHWAY ACTION

The Department of Highways recommends the approval of a driveway approach application and permit containing the objectives substantially similar to those included in Traffic Alternative No. 4, as illustrated in Chapter VI of this DEIS. Depending upon final design parameters, there may be some alterations to Alternative 4 but they would not be expected to be significant.

Final approval of the approach permit will be contingent upon the completion of acceptable design and construction details with respect to drainage, traffic control devices, acceleration and deceleration lanes, specific access points, and road approaches leading to the access points, particularly the Meridian Road/Highway 93 intersection. Consideration also must be given to any improvements that may be necessary in traffic control devices at the intersection of U.S. Highway 93 and Idaho Street.

The sponsors of the Kalispell Mall project will be expected to fund the design, installation and construction of all improvements and traffic control devices that are specifically attributable to increased traffic levels generated by the proposed shopping center.

FOOTNOTES

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3. Ibid.
4. Montana Code, Part 4, 87-5-401.
5. Montana Code, Part 4, 87-5-402.
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7. Montana Department of Health and Environmental Sciences, "Proposed Water Quality Standards, ARM 16-2.14(10)-S14481.
8. Morrison-Maierle, Inc. and James M. Montgomery, Inc., "Lakes and Streams Water Quality Study, Flathead Drainage Montana," prepared for Flathead Drainage 208 Project, January, 1977.
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11. R. L. Konizeski, Alex Brietkrietz, and R. C. McMurtney, "Geology and Ground-water Resources of the Kalispell Valley, Northwestern Montana," Montana Bureau of Mines and Geology, 1968.
12. Morrison-Maierle, Inc. and James M. Montgomery, Inc., op. cit.
13. W. M. Johns, "Geology and Mineral Deposits of Lincoln and Flathead Counties," Montana Bureau of Mines and Geology, 1970.
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16. Keller, Edward B., Environmental Geology, Bell and Howell Company, 1976.
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18. United States Department of Agriculture, Soil Conservation Service, and Montana Agricultural Experimental Station, "Soil Survey of Upper Flathead Valley Area, Montana," Series 1946, No. 4, September, 1960.

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22. United States Department of Agriculture, Soil Conservation Service, and Montana Agricultural Experimental Station, "Soil Survey of Upper Flathead Valley Area, Montana," Series 1946, No. 4, September, 1960.
23. Ibid.
24. Montana Department of Health and Environmental Sciences, Environmental Sciences Division, Air Quality Bureau, "Flathead River Basin Environmental Impact Study," September, 1979.
25. Charles McQueary, official with Pacific Power Company, telephone interview.
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28. Montana Department of Health and Environmental Sciences, Environmental Sciences Division, Air Quality Bureau, "Annual Air Quality Data Summary for Montana 1978," October, 1979.
29. Montana Department of Health and Environmental Sciences, Environmental Sciences Division, Air Quality Bureau, "Flathead River Basin Environmental Impact Study," September, 1979.
30. Wyle Laboratories, "Community Noise Countermeasures Cost-Effectiveness Analysis," Wyle Research Report WCR 75-2, prepared for Motor Vehicle Manufacturers Association, July, 1975.
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43. Overall Economic Development Plan Committee, "Flathead County Overall Economic Development Plan," 1979.
44. George E. Bordner, op. cit.
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46. Mr. Olrid, Superintendent of School District No. 5, telephone interview.
47. Ibid.
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50. Fire Marshall, City of Kalispell Fire Department, interview.
51. Fire Pro-Tek Consultants, Inc., op. cit.
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55. Areawide Planning Organization, "Community Growth Analysis of the Buffalo Hill Area," 1979.

APPENDIX A
AIR QUALITY MODELING ANALYSIS

AIR QUALITY MODELING ANALYSIS

SECTION I: ESTIMATED CO CONTRIBUTIONS FROM ROADWAY LINE SOURCE USING ROLLBACK ANALYSIS

A. Description of the Rollback Model

The rollback model assumes that the concentration of any pollutant at a point i is equal to the background concentration of that pollutant plus some lineal function of the total emission rate of that pollutant in the area under consideration.

$$C_i = b + ke$$

where C_i is the ambient concentration of the pollutant at point i , in parts per million; b is the background concentration of the pollutant, in parts per million; k is a proportionality factor which takes into account meteorology, location of pollutant emissions as feet from point i , and the other factors which influence the source-receptor interaction at that point (ppm/kg/day); and e is the total emission rate of all emissions of the pollutant being investigated within the geographical area modeled in kilograms per day.

B. Application of the Rollback Model to Ambient Carbon Monoxide Concentrations in the Vicinity of the Proposed Mall Site

1. Background Concentration

Background carbon monoxide concentrations are not measured in the area of the proposed mall. However, based on the minimum CO concentrations measured in similar areas, an irreducible CO background concentration of 2 ppm was assumed in the following analysis.

2. Emission Rate

The principal source of CO is from the combustion of fossil fuels. The vast majority of CO emissions are generated by automobile engine exhausts. This analysis assumes that any change in local CO concentrations are the result of changes in the total rate of CO emissions from automobiles in the vicinity of the proposed mall. CO emissions generated by the external combustion of fossil fuels are assumed to be included in the background concentration.

a. Traffic Volume

Total CO emissions were calculated based on the traffic volumes included within the traffic and access study completed for the project site. These volumes are discussed in subsection 1 of Part B of Section IV of the body of this EIS.

b. Emission Factors

Vehicle emission factors were calculated based on the U.S. Environmental Protection Agency methodology provided in Publication EPA - 400/9-78-006, Mobile Source Emission Factors.

c. Emission Rate Calculations

The area emission rate in kg/day was calculated using the projected ADT for each intersection and the vehicle emission factor for the given year. It was assumed that the CO concentration at the receptor is 4 ppm under existing conditions without the mall.

d. Line Source Contribution

CO contribution from the roadway line sources at a distance of 50 feet from the edge of the roadway are shown in the following table.

PROJECTED CO CONCENTRATIONS
FROM ROADWAY LINE SOURCE IN PPM
(8 hour average)

<u>Alternative</u>	<u>Projected CO Concentrations U.S. 93/Meridian</u>
1980 without shopping mall	2.0
1980 with shopping mall	3.3
1990 with shopping mall	2.1

SECTION II: EMISSIONS FROM PARKING FACILITIES

A. Procedures for Estimating Emission from Parking Facilities

The technique used to estimate the carbon monoxide emissions from the proposed shopping center parking facilities is an area source Gaussian dispersion model as described in "Guidelines for Air Quality Maintenance Planning and Analysis", Vol. 9, "Evaluating Indirect Sources" (EPA 450/4-75-00).

The approach taken in estimating the peak impact of parking facility emissions on ambient CO concentrations was to superimpose estimates obtained with a line source model (to denote contributions of sources passing in the immediate vicinity of the receptor) upon those obtained with an area source model (denoting emissions arising from overall activity within the facility). Consequently, it is necessary to express emissions in two ways:

- (1) as emission density to denote overall activity generated by the indirect source, and
- (2) as a line source of emissions, such as those which might be found in the vicinity of exit or entrance queues, on access roads, or at nearby intersection approaches.

B. Emission Density Equations for Area Sources

The equation that follows expresses the technique used to estimate area source emission density.

$$Q = \frac{(EF)(V)(T)}{1,579,500 A} \quad (1)$$

where:

Q = emission density, gm/sec-m²,
EF = average emission factor gm/vehicle mile,
V = traffic volume demand veh/hr,
T = average travel distance within the facility, M,
A = area of the facility, m², and
1,579,500 is the conversion factor from $\frac{\text{g-mi}}{\text{Hr-m}}$ to g/sec.

The relationships among emission density, source size, and CO concentrations for a Pasquill-Gifford Stability Class E and a wind speed of one meter per second (approximately two miles per hour) were utilized from the above reference.

C. Estimating Peak Impacts Within or Near the Parking Lots or on Access Roads Removed from the Lot

Peak concentrations of CO are likely to occur in the vicinity of exits and entrances to the parking lot, near access roads, or at nearby intersections. Traffic at such locations may be characterized as line sources of pollution. At traffic lanes within or adjacent to the open parking lots, the impact of free-flowing and queuing vehicles on CO concentrations in the vicinity of the lanes is added to estimates obtained using the area source model described above and to general CO background concentrations. The procedures used in estimating CO concentrations from line sources are discussed in Section I of this appendix.

D. Calculation of Shopping Center Parking Facilities Impact on Downwind Receptors

The impact of the parking facilities was calculated for worst-case traffic and meteorological conditions. This has been determined to be peak estimated traffic volumes. A Pasquill-Gifford Stability Class E and wind speed of one meter/second was assumed.

1. Background CO Concentrations (C_b)

CO background concentration for the worst-case period was assumed to be 2.0 ppm.

2. Area Source Contribution (C_a)

The emission factors were calculated using values for an estimated vehicle speed of 5 mph at 100 percent cold-start conditions. Using equation (1), the estimated CO emission density of the parking lots is shown in the following table.

CO EMISSION DENSITY
SHOPPING CENTER PARKING LOT
(8 hour average)

<u>Year</u>	<u>Traffic Volume (V)</u>	<u>Emission Factor (EF)</u>	<u>Travel Distance (T)</u>	<u>Parking Lot Area (A)</u>	<u>Emission Density (Q)</u>
1980 w/o center	---	---	---	---	---
1980 w/center	1,100	381.3	400	240,000	4.0×10^{-4}
1990 w/center	1,100	162.0	400	240,000	2.0×10^{-4}

The CO contribution from the parking lot as an area source for various distances downwind of the parking lots is shown in the following table.

AREA SOURCE CO CONTRIBUTION (C_a)
CO Concentration (C_a), ppm^a
(8 hour average)

<u>Year</u>	<u>Center Parking Lot</u>	<u>Distance from Downwind Edge of Lot, Ft.</u>			
		<u>0</u>	<u>100</u>	<u>300</u>	<u>500</u>
1980 w/o center	---	---	---	---	---
1980 w/center	2.0	2.9	2.6	1.6	1.1
1990 w/center	1.2	1.8	1.6	1.0	.7

SECTION III: ESTIMATED CO IMPACT FROM PARKING AREAS AND ROADWAYS

The total CO concentration at a receptor impacted by a parking facility and line source is:

$$C_R = C_b + C_a + C_L$$

where:

C_R = concentration at receptor point, ppm,

C_b = background CO concentration, ppm,

C_a = CO contribution from area source (parking lot), ppm, and

C_L = CO contribution from line sources (queuing lands and access roads), ppm.

The total estimated CO concentrations at a receptor located adjacent to the U.S. 93/Meridian intersection are shown in the following table.

ESTIMATED TOTAL CO CONCENTRATION

 C_R , ppm

(8 hour average)

Year	Line Source Contribution (C_L)	Parking Area Contribution (C_a)	Background (C_b)	Total (C_R)
1980 w/o center	2.0	0	2.0	4.0
1980 w/center	3.3	2.6	2.0	7.9
1990 w/center	2.1	1.6	2.0	5.7

APPENDIX B

ESTABLISHED ZONING DISTRICTS IN THE
BUFFALO HILL AREA

The following zoning districts are found in the Buffalo Hill area. The zone descriptions are excerpted from Kalispell City-County Planning Board Resolution No. 210A and apply to areas in the county portion of the planning jurisdiction.

Residential R-4

A residential district to provide lot areas for urban development. This development must be served by all public utilities.

Residential R-5

A residential district with minimum lot areas. Development within the district will require all public utilities, and all community facilities. Two-family dwellings are permitted in this district.

Residential Apartment RA-1

A residential apartment district to provide areas for low intensity multi-family use, and for non-residential uses which support or are compatible with the primary residential character. This district is intended as a buffer between residential districts and other denser, non-compatible districts. This district must be in close proximity to thoroughfare and be served by public facilities. This district is intended to apply throughout the Planning Area.

Residential Apartment RA-2

A residential apartment district to provide areas for multi-family use and compatible non-residential uses of medium land use intensity. It should be closely associated with primary intensity generators. This district may be applied within the Planning Area, but requires thoroughfare access and all public facilities. [Hospitals and related medical facilities are allowed in this district if these land uses are located adjacent to each other.]

Neighborhood Business B-1

A business district to provide commercial areas within or adjacent to residential areas to meet the demand for certain types of convenience commercial services which cater to the daily needs of the surrounding population. This district is not intended for those businesses that:

1. draw customers from well beyond a neighborhood boundary; or
2. require the outdoor display, sale and/or storage of merchandise, outdoor services or operations, or outdoor consumption of food and beverages.

This district should be a business island of not more than five acres in size, rather than a strip development.

Neighborhood Professional Business B-2

A business district to provide areas for professional offices within and adjacent to residential areas. Since these office structures need not be commercial in appearance, they should architecturally be harmonious with the adjacent residential structures. This district can serve as a buffer between residential areas and other commercial districts. This district should be a business island of not more than two acres in size. [B-2 districts located in the county are limited to medical offices only.]

Community Business B-4

A business district to provide areas for the development of community shopping areas, to serve the range of a number of neighborhoods to a major segment of the Planning Area. This district should be a business island of not more than ten acres and not a strip development. [Table 3-2 of the same zoning ordinance has set a minimum lot requirement of 10 acres for the B-4 district. The difference between the two lot size requirements is currently unresolved according to the Advisory Technical Staff.]

Industrial, Light I-1

An industrial district to provide areas for light industrial uses that typically do not create objectionable characteristics (such as dirt, noise, glare, heat, odor, smoke, etc.) which extend beyond the lot lines. Such light industrial uses would include light manufacturing, processing, fabrication and assembling of products or materials, warehousing and storage and transportation facilities. It is also intended that the encroachment of non-industrial uses within the district be prevented.

Public P-1

A public district to provide and reserve areas for public uses in order to preserve and provide adequate land for a variety of community facilities which serve the public health, safety and general welfare. Said public uses would include schools, public buildings, parks and open spaces, etc.

APPENDIX C
FINDINGS OF FACT

Flathead County

Board of Commissioners

P.O. BOX 1000

KALISPELL, MONTANA 59901

(406) 755-5300

MELFORD R. WOLLAN
FRANK GUAY
JOAN A. DEIST

FINDINGS OF FACT

The Petition for zoning Buffalo Hill B-4 Commerical, having been considered at a public hearing conducted on the 4th day of December, 1979, at Kalispell, Montana, and the Flathead County Board of Commissioners having considered the evidence presented and other relevant evidence, it is hereby found that:

1. The Comprehensive Plan adopted by the Flathead County Board of Commissioners on March 7, 1978 does not address the issue of a regional shopping mall for Flathead County.
2. The Comprehensive Plan was based on data and information compiled so far in advance to its adoption date that it did not fully address then existing uses on Buffalo Hill and the surrounding area.
3. Since the compilation of the information resulting in the adoption of the Comprehensive Plan, development on Buffalo Hill and the surrounding area has included single and multi-family residential, professional offices, hospital, churches, funeral home and crematorium, recreational center, floral shop, tire shop, soft drink bottling warehouse and others. Certain of these uses do not conform to the uses set forth in the Comprehensive Plan.
4. A recent survey by the Areawide Planning Staff shows that approximately 28 offices and five businesses currently exist in the Buffalo Hill and surrounding area.
5. A recent report prepared by the Areawide Planning Staff for the Buffalo Hill area shows that since 1970 the population trends in the Kalispell area have steadily progressed to the North, Northwest and Northeast of the Kalispell City Limits.
6. The City of Kalispell in July, 1978, zoned a three acre parcel along the North side of Sunnyview Lane B-4 Commercial.
7. The property proposed for zoning is bordered along its Western boundary by U. S. Highway No. 93, which is a four lane highway whose average daily traffic in 1978 was approximately 7151 vehicles according to data compiled by the Montana Department of Highways.
8. Because of highway traffic volume and recent development in the area, the property is less desirable as a residential area than as a shopping mall site.

Findings of Fact

Page 2

9. County residents indicate a desire and need for additional commercial retail space in the Kalispell area.
10. It is the expressed intent of the parties requesting the zone that a regional shopping mall be constructed on the property.
11. The proposed shopping mall will provide numerous jobs for local subcontractors and their employees, business for local materialmen, plus full time and part-time employment for numerous area residents in the completed mall.
12. Development of the proposed mall will provide area consumers additional commercial retail space without them having to leave the area to satisfy their consumer needs.
13. Development of the proposed shopping mall will significantly increase the tax base and tax revenue of Flathead County.
14. The developer of the proposed mall has stated that capital costs directly related to the mall will be borne by the developer. Improvements mandated by appropriate public agencies for the mall will also be borne by the developer.
15. Commercial development of the property with a shopping mall is compatible with neighborhood and area development and the demands of Flathead County Residents. The surrounding development and use of property will aid in reducing the possibility of "leapfrog" or satellite commercial development of property near the proposed commercial zone.

Dated this 7th day of December, 1979.

BY: JAL
Joan A. Deist, Chairman

MRF
Melford R. Wollan, Member

Frank Guay, Member

BOARD OF COUNTY COMMISSIONERS
Flathead County, Montana

APPENDIX D
TRAFFIC LEVELS OF SERVICE STANDARDS

Level of service is a qualitative measure of the effect of a number of factors which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs. These criteria are as follows:

Level of Service A describes a condition of free flow, with low volumes and high speeds. Traffic density is low, with speeds and controlled by driver desires, speed limits, and physical roadway conditions. There is little or no restriction in maneuverability due to the presence of other vehicles, and drivers can maintain their desired speeds with little or no delay.

Level of Service B is in the zone of stable flow, with operating speeds beginning to be restricted somewhat by traffic conditions. Drivers still have a reasonable freedom to select their speed and lane of operation. Reductions in speed are not unreasonable, with a low probability of traffic flow being restricted.

Level of Service C is still in the zone of stable flow, but speeds and maneuverability are more closely controlled by the higher volumes. Most of the drivers are restricted in their freedom to select their own speed change lanes, or pass.

Level of Service D approaches unstable flow, with tolerable operating speeds being maintained though considerably affected by changes in operating conditions. Fluctuations in volume and temporary restrictions to flow may cause substantial drops in operating speeds. Drivers have little freedom to maneuver and comfort and convenience are low, but conditions can be tolerated for short periods of time.

Level of Service E cannot be described by speed alone, but represents operations at even lower operating speeds than in Level D, with volumes at or near capacity. Speeds are typically, but not always, in the neighborhood of 30 mph. Flow is unstable, and there may be stoppage of momentary duration.

Level of Service F describes forced flow operation at low speeds, where volumes are below capacity. These conditions usually result from queues of vehicles backing up from a restriction downstream. The section under study will be serving as a storage area during parts or all of the peak hour. Speeds are reduced substantially and stoppages may occur for short periods of time because of the downstream congestion. In the extreme, both speed and volume can drop to zero.

This classification system may be used to express the existing and projected traffic conditions in the project area. Typical design capacity standards are shown in the following chart.

DESIGN CAPACITY STANDARDS

Urban Roadway Type	Lane Capacity, in number of cars per hour	Average Daily Traffic (ADT)
2-lane street	500-700	6,500-8,500
4-lane street	450-750	12,000-20,000
4-lane expressway	700-900	20,000-30,000
4-lane freeway	1,200-1,500	40,000-50,000

Source: Wilber Smith and Associates (1964) Knoxville-Knox County Comprehensive Transportation Study. Tennessee Department of Highways: Nashville.

TRAFFIC DESIGN ELEMENTS

Traffic Element	Explanation and nation-wide percentage or factor
Average daily traffic: ADT	Average 24-hour volume for a given year, total for both directions of travel, unless otherwise specified. Directional or one-way ADT is an average 24-hour volume in one direction of travel only.
Current traffic	ADT composed of existing trips, including attracted traffic, that would use the improvement if opened to traffic today (current year specified).
Future traffic	ADT that would use a highway in the future (future year specified). Future traffic may be obtained by adding generated traffic, normal traffic growth, and development traffic to current traffic, or by multiplying current traffic by the traffic projection factor.
Traffic projection factor	Future traffic divided by current traffic. General range, 1.5 to 2.5 for 20-year period.
Design hour volume: DHV	Future hourly volume for use in design (two-way unless otherwise specified), usually the 30th highest hourly volume of the design year (30HV) or equivalent, the approximate value of which can be obtained by the application of the following percentages to future traffic (ADT). The design hour volume, when expressed in terms of all types of vehicles, should be accompanied by factor T, the percentage of trucks during peak hours. Or, the design hour volume may be broken down to the number of passenger vehicles and the number of trucks.
Relation between DHV and ADT: K	DHV expressed as a percentage of ADT, both two-way; normal range 12 to 18. Or, DHV expressed as a percentage of ADT, both one-way; normal range, 16 to 24.
Directional distribution: D	One-way volume in predominant direction of travel expressed as a percentage of two-way DHV. General range, 50 to 80. Average, 67.
Composition of traffic: T	Trucks (exclusive of light delivery trucks) expressed as a percentage of DHV. Average 10 to 12.

Source: A Policy on Geometric Design of Rural Highways. American Association of State Highway Officials. Wash. D.C. 1954. A Policy of Arterial Highways in Urban Areas. American Association of State Highway Officials, Wash. D.C., 1960.

